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THE NEW ROYAL UNITED SERVICE INSTITUTION.

THE new building, adjoining the historic Banqueting House of Whitehall Palace, which now constitutes the home of the Institution, was formally opened on Wednesday, the 20th of February, by Admiral of the Fleet and Field-Marshal H.R.H. the Prince of Wales.

In consequence of the season of the year, it was not considered advisable to organise any ceremony of a service character, and but for the employment of some Bluejackets, Royal Marines, and Guardsmen in uniform in conducting members and guests to their seats, there was no outward semblance of the importance of the occasion. H.R.H. the Prince of Wales, accompanied by Captain H.R.H. the Duke of York, R.N., arrived punctually at 12 o'clock, and was received at the main entrance by the Vice-Presidents and Council, headed by Admiral Henry Boys, Vice-Chairman, in the regrettable absence, through indisposition, of General George Erskine, the Chairman. Amongst those who honoured the Institution by their presence on the occasion were General H.R.H. the Duke of Connaught, General H.R.H. Prince Christian of Schleswig - Holstein, General H.H. Prince Edward of Saxe - Weimar, Admiral of the Fleet the Hon. Sir Henry Keppel, Field-Marshal Sir F. P. Haines, the First Lord of the Admiralty, the Secretary of State for War, the Prime Minister, the Secretary of State for the Colonies, and representatives of the principal Departments of the State, and the Foreign Naval and Military Attachés, etc.

The Prince of Wales and the Royal Party having taken their seats on the platform in the Theatre, Admiral Boys, on behalf of the Council, read the following address to His Royal Highness :—

TO ADMIRAL OF THE FLEET AND FIELD - MARSHAL
H.R.H. THE PRINCE OF WALES, K.G.

May it please your Royal Highness :

"On the 6th June, 1893, your Royal Highness was graciously pleased to lay the memorial stone of the building in which we are assembled this day.

"On that occasion the Council, in addressing your Royal Highness, stated some facts in the history of the Royal United Service Institution which explained the necessity for the building operations undertaken by the Institution.

"As there seems to be now no reason for reverting to these facts, the Council merely invite your Royal Highness' attention to the work which has been accomplished since the Institution had the honour of your Royal Highness' last visit.

"At that time the Banqueting House, generously granted by Her Majesty the Queen for the use of the Institution, had been re-modelled so as to form a fitting receptacle for the exhibits of the museum. There has

now been added an entirely new structure, containing a lecture theatre, a reference library, reading, writing, and chart rooms, besides other accommodation of minor importance.

"The Institution has thus been provided, for the first time since its foundation, with a suitable home, and it may reasonably be expected that its usefulness to the Naval and Military Services—great as that has been in the past—will henceforward be considerably increased.

"The Council now request that your Royal Highness will be graciously pleased to declare the Institution open for the reception of its members, and at the same time they desire to tender their sincere thanks for the honour of your Royal Highness' presence here to-day, affording, as it does, a new instance of the great interest taken by your Royal Highness in the affairs of the Royal United Service Institution."

The Prince of Wales, who had stood whilst Admiral Boys read the address, speaking in reply said:—"Gentlemen, I thank you for your address, and I must preface my remarks in replying to it by stating that I have very great pleasure, in the absence of the Duke of Cambridge, in completing the work which I inaugurated in June, 1893, and in performing the ceremony to-day of declaring this building open. You have truly said that I have always taken a great interest in the Royal United Service Institution. That is indeed the case, as, in common with the officers of the two Services with which I have the honour of being associated, I have fully recognised the immense benefit which they both derive from the Institution, for it has thoroughly fulfilled the intention of its founders by promoting Naval and Military art, science, and literature. We all know that our annals abound with instances of heroism and devotion to duty in all ranks of the Navy and Army; and I am sure that in those respects the men of the present generation equal those who have preceded them. I am convinced, however, that our officers could not serve their country as efficiently as they might do, or as they themselves would wish, unless they are fully versed in the science of modern warfare, and it is because this Institution affords them great facilities for acquiring this knowledge that it has established its claim to the support of the nation. I have watched the varying phases which the history of the Institution has presented, and I saw with great satisfaction the favourable turn taken in the state of its affairs when the Queen handed over for its use the Banqueting House in Whitehall. I quite understand that this gift, valuable as it was, did not afford all the accommodation which was required, and I am sure the Council did well in availing themselves of the means of extending it, and of raising the new structure in which we have met to-day. In the difficult work of transferring the Institution to these buildings, the permanent staff have been greatly assisted, I understand, by the members of the Council. But to one of these members—we all deplore he is unable through illness to be here this morning—General Erskine, who for the last two years has occupied the position of Chairman of the Council—our thanks are specially due. To the soundness of his judgment, to his tact in dealing with those with whom he was brought into contact, we are indebted in a large degree for the important step which is marked in the history of the Institution by the proceedings to-day. I have little doubt, now that the Institution is installed in a fitting home, that its sphere of usefulness will be largely extended, and I sincerely trust that every success may attend it in future. I have now only to declare the building open."

The Royal Party and the invited guests subsequently made a tour of the new building and museum.

BATTLES OF CHILLIANWALLA AND GOOJERAT.

By General Sir CHARLES J. S. GOUGH, V.C., K.C.B.

CHILLIANWALLA.—13th JANUARY, 1849.

THE Sikh army, under Shere Singh, having been driven after the battles of Ramnuggur and Sadoolapore from the banks of the Chenab, retired to a strong position at Russool, on the left bank of the Jhelum. Lord Gough took up his position at Heylah on the 5th December, covering the fords of the Chenab, and awaited the fall of Mooltan, it being his intention to unite all the troops of the army of the Punjab, and bring the war to a conclusion by one crushing defeat; but Mooltan proved a more difficult nut to crack than was anticipated, and it became apparent that a considerable time must yet elapse before the hoped-for reinforcements could be expected. Meantime, the Sikh position improved. Chuttur Singh, having gained possession of Attock, was now on his way to join his son, Shere Singh, whose force was already estimated at from 30,000 to 40,000 men, and fully sixty guns. On the 10th January, Major Mackeson, the Governor-General's political agent, informed Lord Gough that Chuttur Singh was on his way to join, and urged His Excellency to strike an effectual blow without delay. The force at Lord Gough's disposal amounted to about 24,000 men all told, and sixty-six guns, and was composed as follows:—

Cavalry Division, Sir Joseph Thackwell, Commanding.

1st Brigade, under Brigadier M. White.

3rd Light Dragoons; 5th and 8th Light Cavalry.

2nd Brigade, under Brigadier Pope.

9th Lancers; 14th Light Dragoons; 1st and 6th Regiments Light Cavalry; European Cavalry—about 650 men each; and Native Cavalry, 500. Infantry, 2nd Division,* under Major-General Sir Walter Gilbert.

1st Brigade, Brigadier Mountain, H.M.'s 29th Foot; the 30th and 56th Regiments Native Infantry.

* The 1st Division of the army of the Punjab was employed in the siege of Mooltan.

2nd Brigade, Brigadier Godby; 2nd European Regiment; the 31st and 70th Regiments Native Infantry.

Infantry, 3rd Division, Brigadier-General Colin Campbell, Commanding.

1st Brigade, Brigadier Pennycuik, H.M.'s 24th Foot; the 25th and 45th Regiments Native Infantry.

2nd Brigade, Brigadier Hoggan, Commanding; H.M.'s 61st Foot; the 36th and 46th Regiments Native Infantry.

3rd Brigade, Brigadier Penny, Commanding; the 15th, 20th, and 69th Regiments Native Infantry.

Artillery Division, under Brigadier Tennant.

Six troops of Horse Artillery under Brigadier Huthwaite; the troops commanded respectively by Lieutenant-Colonel Lane, Majors Christie, Huish, Warner, Duncan, and Fordyce; and in mentioning these troops hereafter they will be designated by the names of their commanders.

Two batteries of four 18-pounders and two 8-inch howitzers each, under Majors Sir R. Shakespear and Ludlow; Major Horsford commanding the two.

Three Field Batteries. No. 5 commanded by Lieutenant Walker in the absence of Captain Kinleside, sick; No. 10, commanded by Lieutenant Robertson, in absence of Austin, wounded; and No. 17, commanded by Major Dawes.

The European Infantry numbered about 1,000 each, and the Native Infantry Regiments about 900.

As the force was, in Lord Gough's opinion, equal to the occasion, it did not require much urging to induce him to attack, and accordingly, on the 12th January, the army, which had previously moved to Lussooria, advanced to Dinghee, twelve miles to the North. Dinghee lay almost due east of the position taken up by Shere Singh at and about Chillianwalla. A reconnaissance of the country was made that afternoon, and it was ascertained that Shere Singh had concentrated his force in the dense jungle and about the villages of Chillianwalla, Lullian, and Mojeeawalla, fronting almost due east. In his rear was the river Jhelum flowing from N.E. to S.W., distant at its nearest point about three miles; on his left a rugged range of low hills, much cut up by ravines, which lay along the left bank of the river. On these hills lies the village of Russool, by which a pass led from the Sikh camp to the town of Jhelum, which was the direct line of his communication with Chuttur Singh.

The whole country in the vicinity for several miles to the south and east of Chillianwalla was a dense and thick jungle, covered with low, scrubby trees and thick bushes, extremely difficult, but not impenetrable.

On the evening of the 12th, Lord Gough assembled the commanders of his divisions and brigades, and communicated to them his intention of attacking the Sikh position; but to ensure correct information it was determined to move in the first instance on Chillianwalla, and make a careful reconnaissance. At this meeting the general officers commanding impressed upon Lord Gough that, as the battle would have

to be fought in the jungle, it was advisable that he himself should take up a position in which he could be found with certainty, and not expose himself in the forefront of the battle. This he reluctantly agreed to. Consequently it will be found that the striking personal episodes which occur in his previous actions have no place in Chillianwalla.

At 7 a.m., on the 13th January, the army advanced from Dinghee, formed in line of contiguous columns—Pope's brigade of cavalry on the right, and with it three troops of Horse Artillery, those of Lane, Christie, and Huish. Next, on their left, came Gilbert's division of infantry; Godby's brigade on the right, with Mountain's on the left, and between them Dawes' battery, No. 17, of Field Artillery; on their left, and occupying the centre of the line, the two batteries of Heavy Artillery under Major Horsford. Then came Colin Campbell's infantry division—Pennycuik's brigade on the right, and Hoggan's on the left. Attached to this division were No. 5 Light Field Battery, under Lieutenant Walker, and half of No. 10, under Lieutenant Robertson—the two under Major Mowatt. On the left of the army were the three troops of H.A., under Warner, Duncan, and Fordyce, flanked by White's cavalry brigade. One brigade of infantry formed the reserve, under Brigadier Penny, composed of only two regiments of Native Infantry—the 15th and 69th Regiments—whilst the baggage guard was formed by the remaining half of No. 10 Light Field Battery, the 20th Regiment N.I., drawn from Penny's brigade, and two regiments of irregular cavalry.

As he approached the enemy's position, Lord Gough made a detour to his right, partly in order to get clear of the jungle as much as possible, and partly to distract the enemy's attention. The village of Chillianwalla, in front of which was a high and conspicuous mound, was reached about twelve o'clock. It was found occupied by the Sikhs; they were quickly driven out, and our troops took possession. From the mound Lord Gough was able to obtain an extended view of the surrounding country; the Sikh force being observed drawn up in battle array in the front, Shere Singh having moved out of his positions in the rear. The jungle, though not dense, was still difficult. As it was now past one o'clock, and the day far spent, Lord Gough considered it advisable to postpone the attack till next morning, and ordered the Quartermaster-General to take up a position for the encampment in the rear of the village of Chillianwalla; and it was whilst the regimental quartermasters were in the act of laying out the ground that the Sikh artillery advanced and opened fire upon the line of skirmishers in front. Lord Gough ordered them to be silenced by a few rounds from the heavy guns, when nearly the whole of the Sikh guns replied, thus exposing the positions of their batteries, which the jungle had concealed. It was now evident that Shere Singh meant to force on a fight, and the order was at once given to form line for attack. The force deployed in the same order as it had advanced, whilst the heavy guns, supported by the batteries of Field Artillery, opened a well-directed fire upon the enemy's guns, as far as their positions could be judged by the smoke. After about an hour's cannonading, it being then about 3 p.m., or a little later, the Commander-in-Chief judged that the Sikh guns were

sufficiently disabled to allow the infantry to advance, covered by the Field and Horse Artillery. The advance commenced on the left; the three troops of H.A. moved forward, and came into action at effective range against a powerful battery of Sikh guns. The three guns of No. 10 moved forward with the line of skirmishers of Hoggan's brigade, when a staff officer rode up to Lieutenant Robertson, and ordered him "to take his guns to the left and assist the H.A. in silencing those guns," pointing to a Sikh battery. Robertson accordingly trotted out to the left for about 500 yards, when he saw a considerable body of Sikh horse on his front; upon these he opened a vigorous fire, and soon dispersed them. Limbering up, he again proceeded in the direction pointed out to him, till a shot or two across his front, apparently fired at the advancing brigade of infantry, informed him of the position of the enemy's guns. He brought up his right and came into action against them, as they were engaged with our Horse Artillery. From where he now was, his fire completely enfiladed the Sikh guns, and after about half-an-hour the enemy's fire was completely silenced. An officer of Horse Artillery, which he never saw, though he knew their position, now rode up to him and told him his fire had been of the greatest use to the H.A., and that they were now about to advance, and Colonel Brind wished to know what he intended to do. Having obeyed his orders, Lieutenant Robertson said he would rejoin his own division, which was out of sight. He accordingly moved his guns to the right, moving along the crest of a low-rising ground, being followed and watched by the Sikh horse. He had no escort, and was guided in his direction by the sound of musketry. He proceeded in this manner at a walk, moving leisurely along for a considerable distance, as he wisely considered this might deceive the enemy, at whose mercy he apparently was, until he came in sight of Hoggan's brigade, when he trotted on, and joined. He passed four guns which had evidently been captured from the Sikhs, and numbers of dead, marking the track of Campbell's movements.

Major Mowatt advanced with No. 5, having some difficulty in getting his guns through the thickets of stunted trees, but could get no sight of the enemy, a distant sound of guns to his right being all he heard. After going half-a-mile or more he caught sight, on a sudden and over the tops of the trees and through an opening in the jungle, of a crowd of the enemy straight in front of him, and about 700 or 800 yards distant. The position being unsuitable, he urged his men forward another 300 yards, during which time two or three Sikh guns opened on his left flank, the shots passing in rear of him. He then came to clearer ground, beyond which he saw on a crest a crowd of Sikhs, distant about 450 yards. Their guns and masses appearing through the smoke, these immediately opened a heavy fire of round shot, shell, and musketry upon him. Here he promptly came into action, bringing as heavy a fire as he could upon the Sikhs, their shots mostly going over the heads of his men and tearing through the trees to his right and left, but, fortunately, not doing him much harm. In about twenty minutes the Sikh fire began to slacken, and through the smoke he saw their numbers melting away.

All this time he saw no sign of any of our troops to his right, where Pennycuik's brigade was expected. He now saw Hoggan's brigade through the smoke emerge from the jungle, and going straight at the Sikhs, keeping up a heavy fire, apparently, as they advanced. A body of Sikh infantry advanced to meet Hoggan's brigade, and upon them Major Mowatt concentrated his fire. They were gallantly led by a few chiefs, who endeavoured to carry them on; but they mostly ran back to the jungle and joined the flight which now took place. He could now plainly see Hoggan's brigade, led by Colin Campbell in person, driving the Sikhs before it; then, bringing up its left shoulders and forming astride the enemy's line, advance again and capture the Sikh guns as it moved along. Major Mowatt continued his fire until the flank movement of the brigade caused him to cease, when he limbered up and joined the brigade.

Nothing could have been better than the action of Major Mowatt throughout this most difficult operation, and he afforded to Hoggan's brigade the greatest possible service. When Colonel Brind, commanding the three troops of H.A. on the left, advanced, after silencing the Sikh guns in his front, he perceived that Campbell's left brigade was taking ground to the right. He detached Warner's troop to go and join him, and this they did about the same time that Mowatt's batteries, No. 5 and No. 10, rejoined.

Brigadier-General Campbell, on receiving the order to advance, disposed his brigades in line, with a company from each regiment, advanced as a firing line of skirmishers, according to the admirable tactics of those days; the nature of the ground being, in his opinion, such that he could not personally direct and superintend the attack of both brigades, and conceiving that his left brigade was more liable to be outflanked, General Campbell informed Brigadier Pennycuik that he should remain with it, leaving the direction of the right brigade entirely with its own commander. Brigadier Pennycuik accordingly advanced. The ground for some distance, being comparatively open, soon became interspersed with trees and thick, thorny bushes, impeding the regularity of the advance and screening from observation whatever might be in front. So serious was the obstruction that the line became disordered, and the companies were reduced to columns of sections. After moving forward for a few hundred yards, the right brigade came under a fire of round shot, which was converted, as it advanced, to an incessant fire of grape, directed principally upon H.M.'s. 24th, the centre regiment. This was the more formidable as the enemy were still completely screened from view. Officers and men began to fall in increasing numbers, nevertheless, the brigade continued to advance most steadily, although the difficulties of the jungle increased as it approached the enemy, until finally, about fifty yards in front of the Sikh guns which at last came into full view, the 24th came upon an impassable swamp, or pond, partially filled with water, and surrounded by scraggy trees and stumps, the ground being much broken. Two companies were obliged to file in rear, and thus it happened that the centre of the regiment, and several of the companies on the left, were brought up

nearly to the muzzles of the guns in masses and in much disorder, and were received by a tremendous discharge of grape and musketry. Brigadier Pennycuick and many officers and men had already fallen as they closed on the enemy. Colonel Brookes was distinctly seen in front of the colours of the 24th, showing a splendid example, and cheering his men on. The 24th never for a moment hesitated, but pressed forward and captured the guns at the point of the bayonet without firing a shot, but only for a moment. The Grenadier Company on the right, having experienced less difficulty in the advance, carried the position in front of them before the rest of the regiment, and Lieutenant Lutman assisted Private Marfield in spiking one of the guns. The enemy's fire was, however, so heavy, the Grenadiers were forced back; but, led by Captain Travers, again advanced to the charge, again carried the guns, and more were spiked. Captain Travers here fell, cut down by a tulwar. The whole regiment was now hotly engaged and numbers fell on both sides. Colonel Brookes was seen to fall close to the guns; Major Harris was mortally wounded and carried to the rear; Lieutenant Collis and Ensign Phillips, carrying the colours, both fell, struck by grape, close to the guns; Lieutenants George Phillips, Woodgate, and Payne fell at the guns. Thus in the short time that elapsed between the advance and this struggle on the part of the regiment to hold the position it had so nobly won, all their leaders and many officers, thirteen in all, were killed and ten wounded, and an immense number of N.C.O.'s and men had fallen; exhausted by their exertions, and the rapid advance for so long a distance and wholly unsupported, for no support was available at the critical moment, was it to be wondered at that the regiment which had made so splendid a fight, and suffered so fearful a loss, at length gave way? For some time the few officers who remained were unable to restore order, nor was the regiment re-formed till it had got clear of the jungle. Its loss, in addition to the officers, amounted to 231 killed and 266 wounded. With the 24th advanced the 25th Regiment N.I. on the right and the 45th on the left, meeting with the same obstacles, and advancing also under a heavy fire of all arms; they also suffered severe loss, and on the retreat of the 24th they also were compelled to give way. Several parties of both regiments were, however, quickly rallied. Captain Clarke kept his whole company, the rifle company of the 25th, together, and about 100 of the 45th Native Infantry rallied round the colours of the regiment under Lieutenants Oakes and Tozer, Ensigns Trotter and Evans. These parties by their fire drove off the Sikh horsemen who attempted to follow up the brigade. They advanced again and moved with White's cavalry brigade when taking ground to the right, and subsequently joined Hoggan's brigade. The 25th Regiment lost one European officer, six Native officers and 105 men killed; two European officers, three Native officers, and eighty-seven men wounded. The 45th lost twenty N.C.O.'s and men killed, four European officers, one Native officer, and fifty-four men wounded.

Pennycuick's brigade behaved with gallantry and exemplary devotion, but its advance was too precipitate, and unfortunately he had no support from artillery.

Hoggan's brigade on the left was led by General Campbell in person; it advanced simultaneously with Pennycuick's, but owing to the jungle it became disconnected; it was covered by the fire of Mowatt's guns on its right, and the H.A. and No. 10 silenced a heavy battery that would otherwise have enfiladed the brigade in its advance. The nature of the ground caused frequent breaks in the line, but General Campbell, by regulating the pace, kept his troops well in hand and preserved good order in the advance, nor did it meet with such serious obstacles as were encountered by Pennycuick. After moving forward about half-a-mile it reached a comparatively open tract of country; on this was now seen a large body of Sikh cavalry and infantry with four guns, which had played upon the brigade in its advance. The 61st Regiment forthwith charged this cavalry and put it to a disorderly flight, whilst the 36th Regiment N.I. attacked the Sikh infantry. It must have been at this moment Major Mowatt caught sight of the brigade "going straight" at the Sikh line. For the moment the 36th Regiment were thrown into some disorder by an attack of the Sikh infantry on their right flank, but General Campbell instantly wheeled the two right companies of the 61st to the right, charged the Sikhs who were attacking the 36th, completely repulsed them, and captured two guns. The brigade now rapidly formed to the right, astride the enemy's line; in doing so the 46th Regiment on the left was attacked by the Sikh cavalry in considerable strength; these they gallantly repulsed under their commander, Major Tudor. At the same time the Sikhs brought up two more guns and fresh infantry against the right, upon which those who had just been driven back again formed. This was, in the opinion of General Campbell, the most critical moment of the day; but so ably was the brigade led, and so steadily did it behave, that this difficult change of front, whilst actually engaged with the enemy, was effectually and successfully carried out, and the whole brigade advanced to the attack, driving the Sikhs before it, and capturing, one after another, thirteen guns, all of which were obstinately and bravely defended by both Sikh infantry and gunners, and only obtained possession of after a sharp struggle. So close was the fighting that the Brigadier-General himself was severely wounded by a sword-cut on his right arm. The brigade continued to move swiftly on, rolling up the Sikh line as it advanced, and overcoming all opposition, being exposed all through the movement to repeated attacks of Sikh cavalry, who were following up, and which compelled General Campbell at intervals to halt, face his troops about, and drive them off. Thus Campbell completely defeated and dispersed that portion of the Sikhs which just before had inflicted so terrible a repulse and severe loss on Pennycuick's brigade. Seeing a battery of artillery on his right, and finding it to be Mowatt's, he ordered it to join, and continued his movement till he fell in with Mountain's brigade, when he again wheeled to the left, forming on his line on the original front. It was during this flank movement Campbell first heard from Colonel Brooke, commanding the H.A., of the disaster that had happened to his right brigade.

Campbell's loss in this attack and sharp hand-to-hand fight, though

considerable, was by no means excessive, seeing the difficulties of the country and the obstinate defence of the enemy. H.M.'s 61st Foot lost eleven men killed, three officers and 100 men wounded; 36th Regiment N.I., one native officer twenty-seven men killed, six European officers, two Native officers sixty-nine men wounded; 46th Regiment N.I., three men killed, three native officers forty-eight men wounded.

The loss of the artillery was comparatively small. Fordyce lost five men and two horses wounded; Duncan's troop, one officer and six horses killed, two men and one horse wounded; Warner's troop, one man and one horse killed, and one man and one horse wounded; No. 5 Light Field Battery, five men wounded, eleven horses killed and two wounded; No. 10 Battery, only one horse wounded. Although the Sikh gunners stood well to their guns, they had not learnt the art of shooting straight.

White's Cavalry brigade, acting on the left, advanced with Campbell's division. The nature of the country was wholly impracticable for the action of cavalry: unable to see anything in their front, they came suddenly under a very heavy fire of round shot, which mostly struck the ground in front of the line and ricocheted over the heads of the men. The brigade formed in support of the guns. On the Sikh battery being silenced by the H.A. as already related, Sir Joseph Thackwell proposed to follow up the advantage by a cavalry attack, and accordingly ordered the Grey squadron of the 3rd Light Dragoons and the 5th Light Cavalry to charge. These two bodies, led respectively by Captain Unett and Captain Wheatley, advanced. The 5th Light Cavalry came upon a mass of Sikhs, and were received with a considerable musketry fire, and, being much broken by the thick and scrubby jungle, were unable to make any impression on the enemy, and were repulsed; they, however, rallied at once very steadily and in good order on the 8th, the centre regiment. Unett's squadron of the 3rd Light Dragoons, coming on a smaller body, broke through and swept on right through to the Sikh rear; then, re-forming his men and wheeling about, he cut his way back, but did not rejoin the brigade till towards the close of the action, causing great anxiety to Thackwell, who feared it had been annihilated. This splendid charge was, unfortunately, attended with very severe loss, for the line being broken by the jungle, the Sikh horsemen followed them up, and, falling upon those who were isolated and separated, cut down many gallant soldiers. The squadron lost twenty-three men killed, two officers and fifteen men wounded, fifteen horses killed and missing, seven wounded. The want of success that attended this attack prevented Sir Joseph Thackwell attempting any further offensive movements, and he was obliged to content himself with affording such protection as he could to the left of Campbell's division. He detached the H.A. troop and a squadron of the 8th Cavalry to join Hoggan's brigade, and with the remainder of the brigade took ground to his right, following Campbell's movements. In doing so the cavalry crossed the line by which Pennycuik's brigade had advanced, and the field, littered with the bodies of the fallen, attested the severity of the struggle. Here were picked up some parties of the 45th Regiment who came on, and the

brigade formed up in rear of Hoggan's and Mountain's brigades on about the centre of the position originally held by the Sikhs. Thus faced the left attack. The loss of the Cavalry Brigade was: 3rd Light Dragoons, twenty-four men killed, two officers and fourteen men wounded; 5th Light Cavalry, two European sergeants and four men killed, two officers and fourteen men wounded; 8th Light Cavalry, one man killed, and two wounded.

Shortly after Campbell's division advanced, Sir Walter Gilbert led the right division to the attack, both brigades being covered by a line of skirmishers—No. 17 Field Battery, under Dawes, in the centre between the brigades in line with the skirmishers, and sometimes in advance. Three troops of H.A. were placed on his right, and the 2nd Cavalry brigade, under Pope, occupied the extreme flank. The division advanced steadily through the jungle, but its advance was retarded by the action of the cavalry on the right.

Pope, observing a considerable body of Sikh horsemen on his right on the slopes of the Russool Hills, detached a wing of the 9th Lancers, a wing from each of the 1st and 6th Light Cavalry, with Lane's troop of H.A., reinforced by two guns from Christie, under Lieutenant Le Geyt Bruce, for the purpose of protecting his exposed flank. This force was under command of Lieut-Colonel Lane, H.A.; with the remainder he advanced in line with Gilbert's infantry, until presently he observed immediately in his front a body of Sikh horse; his ten guns of H.A., Huish's troop, and four of Christie's, went to the front, and were in the act of unlimbering, to come into action against the enemy, when Pope advanced his line to the attack. The wing 9th Lancers, under Major Hope Grant, was on the right, then came wing 1st Light Cavalry, H.M.'s 14th Light Dragoons, and the wing 6th Light Cavalry. The Brigadier led in front of the 14th, and proceeded in as good order and as rapid a rate as the nature of the ground permitted, and soon got amongst the enemy; this advance of the brigade masked the fire of the H.A. guns, which were on the point of opening. The charge was delivered at a very slow pace and without any momentum, and Brigadier Pope was himself almost immediately wounded by a sword-cut on the head, and, being disabled, had to be conducted from the field. Now occurred what, happily, is a rare event in the annals of British cavalry. From some wholly inexplicable reason, some of the men, about the centre of the brigade, went about, and a movement began to the rear, others followed, and, notwithstanding the exertions of the officers, the centre gave way, and, followed by the remainder of that portion of the brigade, broke into a reckless stampede and galloped to the rear, as in their advance they had got in front of the guns, so now, in their headlong retreat, they rode right down upon them, overthrowing some and causing the greatest confusion and disorder, completely uncovering the right of Gilbert's division. A few Sikh horse galloped down in pursuit, and, seeing the guns in this helpless condition, cut down many of the men and severely wounded Major Christie, capturing, for the time, the guns. They succeeded in removing and taking away four guns and two wagons. The cavalry could not be stopped until they got clear of the field, and

were with difficulty rallied by the exertions of Colonel Pat Grant, Adjutant-General, and Major Fred Haines and Colonel Gough, on the staff of the Commander-in-Chief. The loss of the brigade was most trifling, and is proof of the unreasonable nature of the panic. The 9th Lancers lost three men killed, four wounded; the 14th Light Dragoons, one officer and one man killed, and fourteen men wounded; the 1st Light Cavalry, three men killed and four wounded; the 6th Light Cavalry, one European officer, two Native officers, four men killed, and two officers and eight men wounded. Major Christie died of his wounds, and seven of his men were killed and two wounded; Huish lost five killed, and five wounded. But fifty-three horses were carried off by the enemy, and ten guns H.A. rendered useless for the day, four of them being carried off as a triumph by the Sikhs.

This most serious disaster occurred as Gilbert was leading his division to the attack, and compelled him to refuse his right brigade in order, to some extent, to protect his right flank; but his troops behaved magnificently. Continuing their advance with perfect steadiness, covered by the very effective fire of No. 17 Field Battery, Mountain's brigade came upon a strong battery of the enemy in front of the village of Lullian and promptly charged, carrying the whole of the guns at the point of the bayonet; this attack was almost immediately followed by Godby's brigade, who also charged and carried the Sikh guns in their front. Godby now halted his brigade and re-formed his line, and was collecting the wounded, when suddenly a fire was opened on him from his rear. A large body of Sikhs had turned his flank (uncovered, as related, by the retreat of the cavalry) and got into his rear, and, in fact, he was surrounded. The journal of a subaltern of Godby's brigade records in stirring language the incidents of the day. Godby's order was coolly given, "Right about face." Major Dawes' battery, which seems to have been everywhere at the right moment, was splendidly handled, and moving to the right flank poured in a heavy fire and scattered the Sikh horsemen who attempted to charge, knocking over men and horses in heaps. Sir Walter Gilbert at this moment rode up, and, seeing Major Steele, commanding the 2nd Europeans, addressed him coolly and cheerily, "Well, Major, how are you? Do you think you are near enough to give those fellows a charge?" "By all means," answered Steele. "Well, let us see how you can do it." Such conduct was equal to a reinforcement of 1,000 men! In an instant the brigade, led by the 2nd Europeans, marched to the rear and, with a cheer, rushed upon the Sikhs. These fought manfully sword in hand, and strove to break through the line, but after a short, sharp struggle, they were swept away, and the 2nd Europeans again stood masters of the field. Mountain's brigade, equally well led, met with the same desperate resistance and were compelled to face about to repulse the enemy; about this time Colin Campbell, with Hoggan's brigade and White's cavalry, and the whole of the artillery of the left, now moved up and joined to Mountain's left. Penny's infantry, which was ordered up by Lord Gough on hearing of Pennycuik's disaster, and which, in the intricacies of the jungle, had moved diagonally from the centre towards

the right, suddenly found itself on the right of, and in front of Godby, where it also was attacked from front and right and rear, until Dawes, the ubiquitous, came to his aid and, by the fire of his guns, drove off the Sikhs. Campbell having joined on to Mountain's left, the whole of the artillery were brought forward, and opened a destructive fire upon the Sikhs, who were now in full retreat and in great disorder, moving towards Russool. That portion of Pope's cavalry brigade which had been detached to watch the enemy on the right took but little part in the fight. Colonel Lane, who does not seem to have been aware of the disaster to the main body of the brigade, remained far away to the right, nor did he afford any protection to Gilbert's right, as he undoubtedly should have done, but he watched a considerable body of the enemy who menaced an attack from the slopes of the Russool Hills, and opened fire on them with some effect; and, subsequently, after moving forward, he came upon large bodies of the Sikhs retiring from before the attacks of Gilbert and Campbell, upon whom he opened a heavy fire of grape from all his guns, completely dispersing them. About this time the action ceased. The Sikhs were driven from the field in the utmost disorder, and with the loss of almost all their guns, and an immense loss in killed and wounded.

Lord Gough had taken up a position in rear of the centre during the early part of the action—on hearing of Pennycuik's repulse he had ordered up Penny's brigade—and moved to the right on learning the still further disaster to Pope's brigade of cavalry, being anxious as to how matters stood in that direction. He followed on in rear of Gilbert's attack, and rode up to the centre where Campbell and Mountain still stood, the artillery pouring in their parting shots upon the Sikhs retiring upon Russool. Here, after a discussion with the Generals Commanding, it was decided to withdraw the army to a position in the rear, near the village of Chillianwalla. The infantry, exhausted by their long day's work and hard fights, and the want of water, were unable to continue a pursuit, which was the more impracticable, it being now past five o'clock and rapidly getting dark. Gilbert's Division lost of Godby's Brigade:—The 2nd Fusiliers, two European officers wounded, six men killed, and sixty wounded; 31st Regiment N.I., three men killed, one European officer, one Native officer and fifty-four men wounded; 70th Regiment N.I., two Native officers and three men killed, and twenty men wounded. Mountain's brigade:—29th Foot, thirty-one men killed, five European officers and 203 men wounded, and three missing; 30th Regiment N.I., two European officers, one Native officer, and sixty-four men killed, nine European officers, nine Native officers, and 200 men wounded; 56th Regiment N.I., two European officers, four Native officers, and thirty-nine men killed, and thirty-six missing (who may be added to the killed), six European officers, six Native officers, and 227 men wounded.

Dawes' battery No. 17, lost two officers wounded, and three men; three horses killed, one missing.

The loss of Penny's brigade amounted to twelve men killed, five European officers, one Native officer, and 103 men wounded.

As many of the captured guns as possible were tied up behind the

guns of our own artillery, but the greater number were left upon the field; and the British force withdrew for the night from the battle-field, and formed a bivouac about the village and Mound of Chillianwalla.

The Sikh army, after a hard struggle, had been completely defeated, driven in the greatest confusion and disorder from the positions they had occupied, with the loss for the time being of almost all their guns and an immense number of men. During the night they succeeded in removing the guns left by us upon the field, and took up a position at and about the village of Russool, on the rugged hills along the banks of the River Jhelum.

Early the following morning the British cavalry were out over the field; the dead were buried or removed to camp for interment. The Sikhs remained on the slopes of the hills, but did not venture to come down into the plain. Heavy clouds came rolling overhead, and rain, which had been threatening for some time, broke, and for several days it continued to pour in torrents, rendering the ground perfectly impassable, and putting out of the question any attempt to move.

The total loss of the British force was twenty-two officers, sixteen Native officers, and 561 men killed, and ninety-eight men missing, who may be added to the number; sixty-seven officers, twenty-seven Native officers, and 1,547 men wounded. Grand total, 2,338 men.

REFLECTIONS.

Chillianwalla has been called by some a doubtful victory, and by some even as a defeat; and by others as a specimen of Lord Gough's Tipperary Tactics.

Some errors of judgment may have been made. War is, even in the hands of the best commanders, a risky venture, but, notwithstanding the chequered events of the day, and the strokes of most evil fortune, Lord Gough stood, at the close, with his splendid troops, complete master of the field.

If Lord Gough was still doubtful as to an immediate attack, the force should not have been brought up within striking distance of the Sikhs. This must be conceded. It gave to Shere Singh the option of fighting or not; but Lord Gough perceived the situation with true military instinct, and without any hesitation accepted it rightly.

His orders for the delivery of the attack at Chillianwalla were precisely the same as those given subsequently at Goojerat, and it was his intention that the whole of the guns should have preceded the infantry and covered their assault.

The extraordinary and unparalleled disaster to the Cavalry brigade on the right was no fault of Lord Gough's. By it Gilbert's right was entirely uncovered, and he lost the protection of the Horse Artillery, as well as of the cavalry, which he otherwise would have had; and, by the repulse of Pennycuik's brigade, his left was also exposed to attack. Yet, in spite of these misfortunes, Gilbert's two brigades overcame all obstacles, captured the enemy's guns in their front at the point of the bayonet, and drove the Sikh infantry from the field.

Colin Campbell, unfortunately, conceived the idea that he could not carry out his proper duties as a divisional commander, and the influence of his guiding hand was sorely missed; the consequence was, his two brigades did not act in unison. The fact that the jungle through which the troops had to advance to the attack was dense, made it all the more imperative that the Divisional Commander should thoroughly exercise control over both brigades, so as to maintain the connection and regulate the pace. The right brigade, under Pennycuik, must have been carried too far to the right, and delivered their attack without the support of any guns, and in too hurried a manner; and, although officers and men behaved with the utmost gallantry and devotion, and succeeded in carrying the enemy's guns, the brigade was forced to give way under pressure of masses of Sikh infantry formed in support of their guns. The left brigade was most ably led by Campbell in person. Regulating the pace as he moved through the jungle, he arrived in presence of the enemy with his troops in good order; and, covered by the fire of all the guns on the left, he broke and defeated that portion of the Sikh line in front of him. Then, finding himself isolated from the rest of the army, he coolly, and with perfect steadiness, changed front to his right. Advancing against the Sikhs, he drove them before him, capturing all their guns, until he re-united himself with Mountain's brigade, when he wheeled again to his original front; in this movement rolling up and defeating the Sikh right, and the very troops that had just before repulsed his right brigade, of whose disaster he only heard in the course of this flank movement. In all this Colin Campbell was acting not in his proper and responsible position as a Divisional Commander, but as that of a Brigadier. Had he exercised his proper functions and controlled and regulated their advance, and allowed time for the two batteries of heavy guns to come up into action at a shorter range, they would have crushed and overwhelmed the enemy's central battery and have rendered Pennycuik's task an easy one.

The nature of the country was most impracticable for cavalry, but White's cavalry brigade on the left was carefully and steadily handled; and though Sir Joseph Thackwell attempted an attack, and failed, he yet succeeded in affording protection to the left.

Brigadier Pope was greatly to blame for his manner of handling his cavalry. Without any consideration, and at the very first sight of a few horsemen in his front, he ordered the nine squadrons of cavalry, under his immediate command, to advance to the attack, in one long line, without any support or reserve, thereby preventing the H.A., which was in the act of coming into action, from opening their fire. Broken by the jungle, the charge was badly delivered, and, instead of increasing the pace, the line was brought almost to a trot at the moment of collision; and the Brigadier himself being wounded by a sword-cut on the head, was taken to the rear, and through some unaccountable misapprehension was followed by the centre regiment, and then by the remainder in a panic flight, upsetting and disabling the ten H.A. guns, and rendering them unfit for further service throughout the day. The only fault that

can properly be laid to Lord Gough was his selection of Pope to command a cavalry brigade. It is needless to say that, had this cavalry been handled even with moderate ability and steadiness, the battle would have taken a very different turn, and in all probability the defeat of the Sikh army would have been complete and decisive.

The conduct of Colonel Lane, in command of a very strong body of cavalry—two squadrons 9th Lancers, one-and-a-half squadron 1st Light Cavalry, one-and-a-half squadron 6th Light Cavalry, and eight Horse Artillery guns—is inexplicable. He was detached by Brigadier Pope to the right in order to protect that flank. His attention being taken up by a few Sikh horsemen on the slopes of the Russool Hills, he lost all touch even of the cavalry on his left—so completely, he was not even aware of the disaster that happened to them. Beyond firing a few shots at some bodies of Sikhs who came under his observation, he took no part in the battle, and it was not till late in the afternoon he heard from an officer who rode up to him (Lieutenant de Teissier, H.A.) of the events of the day. When it became dark and the firing ceased, he retired towards the camp; but unable to find his way he bivouacked for the night in the first open space he came to. Had he closed into his left and kept touch with Gilbert's division, and acted with vigour, the force at his disposal and the fire of his H.A. guns would have effectually protected Gilbert's right, and have turned the scale entirely in our favour, and probably have rendered the victory a decisive one, notwithstanding the disaster to the cavalry brigade.

These reflections prove that Lord Gough was perfectly justified in deciding to attack the Sikh army, and that nothing but a chapter of accidents—for which he was in no way accountable—prevented it being a decisive success; and that, even as it was, the Sikh army was utterly routed and driven from the field.

AFTER CHILLIANWALLA.

The Sikhs retired by their left on to the position they had occupied on the range of hills at Russool.

Heavy rain fell the next day, rendering any move on either side impossible, and it continued for two or three days. On the night of the 18th a letter was brought in from Shere Singh expressing a wish for some mutual arrangements, but no notice was taken of it. On the 19th, General Elahee Buksh, commandant of Sikh artillery, with his two sons, Colonels of the same arm, and accompanied by a Colonel of infantry, came in. Elahee Buksh said the Sikh army was so disordered and completely beaten in the fight that, had we had another hour of daylight to follow them up, we must have captured all their guns, camp-stores, and baggage; and that even had we advanced the next day, the result would have been the same, and that out of nearly sixty guns he had taken into action fifty had been captured and spiked. These facts show how demoralised the Sikh army was immediately after the action. But the unfortunate incidents of the day, the heavy loss suffered in the action, the exhaustion of the troops owing to want of food and water immediately

after the action, followed by the heavy rain for two or three days, rendered all movement impossible. Lord Gough resolved that as circumstances had now turned out, he would simply quietly wait and watch the Sikh army until the fall of Mooltan enabled him to gather his whole army together, and with one crushing blow bring this war to a conclusion. Both forces remained quietly in their respective camps. On the 25th January it was rumoured in camp, through native sources, that Mooltan had fallen; and on the 26th official intelligence reached the Commander-in-Chief. A royal salute of twenty-one guns was fired to announce the news to the Sikhs.

Early in February, Shere Singh moved a portion of his force to Pooran, on the north side of the Russool Range, on the way to Jhelum; and on the 5th he occupied Korcee, on the southern slope of the hills, and within five miles north of Dinghee—thus threatening our line of communications, which were still carried on by Dinghee. On the 9th, a grand review of this division was held in a very ostentatious manner, a large red flag being planted on the mound at Noor Jumal, and the Sikh Sirdars, mounted on elephants, were plainly visible from our camp. On the 11th, a demonstration was made from Korcee on our rear face—the camp was pitched in the form of a square—but Lord Gough adhered quietly and firmly to his resolve to wait for all his troops before he would be tempted to a combat; it was his wish not to frighten the quarry away, but to encourage them to stay. A few squadrons of cavalry sufficed to hold the Sikhs in check. On the morning of the 14th all signs of the Sikh camp suddenly disappeared; but it was soon ascertained that they had marched by the north side of the Russool Range in the direction of Goojerat.

The Mooltan troops were now daily approaching, and it was not possible for the Sikh army to surprise the fords across the Chenab, which were carefully watched. Lord Gough on the 15th marched to Lussoorie, and on the 16th to Sadoolapore, on the banks of the Chenab, moving parallel to the Sikhs on Goojerat. On the 19th, he moved to Shadiwal, about five miles south of Goojerat, now occupied by the Sikhs; and on the evening of the 20th February, the Mooltan force having joined, the army of the Punjab was concentrated under the direct orders of the Commander-in-Chief.

The 1st Division of Infantry, under General Whish, in two brigades—1st, under Markham, the 32nd Foot, 49th and 51st Regiments N.I.; the 2nd, under Hervey, the 10th Foot, 8th and 72nd Regiments N.I.

The 2nd Infantry division, under Sir Walter Gilbert, with brigades under Mountain, the 29th Foot, 30th N.I. and 56th N.I.; and Brigadier Penny, the 2nd European Regiment, the 31st and 70th Regiments N.I.

The 3rd Infantry division, Colin Campbell, the same regiments as at Chillianwalla, with brigades commanded by Carnegie, McLeod, and Hoggan.

The Bombay column, under General Dundas, the 60th Rifles and 3rd Bombay N.I., the Bombay Fusiliers and the 19th N.I.

There were sixteen batteries of artillery numbering ninety-six guns, and the cavalry, under Sir Joseph Thackwell, 3rd Light Dragoons,

9th Lancers, 14th Light Dragoons, the 1st, 5th, 6th, and 8th Regiments Light Cavalry.

The Scinde Horse, 3rd, 9th, 11th, and 14th Regiments of Irregular Cavalry.

Brigadier-General Cheape commanded the Engineers and Sappers.

GOOJERAT.—21ST FEBRUARY, 1849.

The dawn of the 21st February, the British force turned out as quietly and smartly as if for an ordinary field-day. The men all had a light breakfast, and by seven o'clock the line was formed in order of battle. The two armies, which had been facing each other so uneventfully after the last clash of arms at Chillianwalla, now five weeks ago, were drawn up for a still more decisive combat.

Never was there a more beautiful sight or a lovelier day. The British troops, in their bright uniforms, with dark patches dotted all along in front, which meant batteries of artillery numbering nearly 100 guns. The country a beautiful level field of young waving corn, with but very few trees. The force faced nearly due north; beyond, in the distance, was seen the town of Goojerat, surrounded by gardens and trees, and, somewhat nearer, two or three villages lying in the same cultivated plain. Here, in advance of the town, and, using these villages evidently as strong posts to hold on to, was formed up the Sikh army, their flanks protected by cavalry. In the background of this picture stood up, in the far-distant horizon, the magnificent snowy range of the Himalayas, away to the N.W.

The principal feature of the ground is a deep watercourse, or nullah, then dry, which is very tortuous, passing round nearly two sides of the town of Goojerat, winding to the west, it then takes a southerly direction, running through the centre of the ground occupied by Lord Gough with his force at Shadiwal. This nullah in its windings afforded cover to the Sikh infantry in front of their guns.

The left flank of the Sikh army rested upon a wet nullah, which flowed on a southerly course into the River Chenab.

Lord Gough determined to attack along the line of the dry bed of the nullah, previously mentioned, and formed his troops in the following order from the left:—White's Brigade of Cavalry, 3rd Light Dragoons, 8th Light Cavalry, 9th Lancers, and the Scinde Horse, with Huish and Duncan's troops—as they were then called—of Horse Artillery. Then came the Bombay column under General Dundas, in two brigades, and with them Blood's troop of Bombay Horse Artillery; then Colin Campbell's infantry division—three brigades, of which two were in the front line, under Brigadiers Carnegie and McLeod, while Hoggan's brigade was placed in the second line in direct support of the Bombay column. In support of Campbell's division were two light field batteries—No. 5, Major Ludlow; and No. 10, Lieutenant Robertson. This portion of the force was formed on the left of the nullah.

Upon the right of the nullah stood Sir Walter Gilbert, having

eighteen heavy guns on his left, under Majors Day and Horsford, with the batteries commanded by Sir Richmond Shakespear and Captain Shakespear. Gilbert's infantry consisted of two brigades, Mountain's and Penny's. On the extreme right of the infantry was placed General Whish's division, Harvey's brigade in the front line, and Markham's in the second, covered by three troops of Horse Artillery—Fordyce's, Mackenzie's and Anderson's—and for the present, Dawes' battery of Field Artillery, with Lane's and Kinleside's troops of H.A. were kept in reserve under Lieutenant-Colonel Brind. The right flank of the infantry was protected by Brigadiers Lockwood's and Hearsey's brigades of cavalry with Warner's troop of Horse Artillery. The 5th and 6th Light Cavalry, with the Bombay Light Field Battery, and the 45th and 69th Regiments Native Infantry, under Lieutenant-Colonel Mercer, were formed as reserve in charge of the rear and baggage.

At half-past seven the army advanced. The Sikhs commenced the ball by opening at long ranges, exposing both the position and range of their guns. Presently the whole of the British artillery advanced, the batteries in reserve having been brought up, covered by infantry skirmishers, at about nine o'clock took up a position in one long line, about 800 yards in front of the Sikhs, the first shot on the British side being fired by Major Dawes' battery, No. 17. The heavy guns opened fire at about 900 yards. Thus every available gun on the British side was brought up, and for nearly three hours continued a most destructive fire upon the Sikh artillery and infantry. These held on to their posts with most dogged and admirable resolution, but at length, completely over-matched both in weight of metal and efficiency of fire, they began to give way. During all this time very few changes had taken place in any of the batteries.

At about half-past eleven a general advance of the line was ordered, the artillery still preceding, and keeping up as heavy a fire as possible. Sir Walter Gilbert, seeing the village of Kalra apparently abandoned, sent forward a party of infantry to occupy it, but they were received by so sudden and heavy a fire that it was evident the Sikh infantry were still determined to struggle boldly for the honour of victory, and the 2nd European Infantry, of Brigadier Penny's brigade, were ordered to storm it, which was gallantly done under the leading of Major Steel and the Brigadier. The Sikh infantry also made one or two desperate endeavours to stem the torrent of retreat, and made attempts to advance against the brigades of Hervey and Markham on the right, but were on each occasion so severely dealt with by the guns of Fordyce, Anderson, and Mackenzie, that they broke and fled in confusion. Colin Campbell's division, on the left, did not fire a single shot—in fact, the fire of the batteries cleared the ground as they advanced for the infantry, and, except at the villages of Burra and Chota Kalra, they never came to close quarters.

The Afghan cavalry on both flanks had shown indications of a desire to extend round and turn our flanks, and Sir Joseph Thackwell, on the left, determined to attack them. For this purpose—it must have been

about half-past eleven o'clock—he ordered his left regiment, the Scinde Horse, supported by the 9th Lancers, in second line, to advance and charge; at the same time the 8th Light Cavalry and 3rd Light Dragoons, with the two batteries of Horse Artillery, advanced direct upon them, the batteries rapidly coming into action to cover the charge of the Scinde Horse. It was a glorious sight to see the Scinde Horse and 9th Lancers sweeping forward over the open plain, and in a few moments the whole Afghan force of cavalry turned and fled, and Thackwell found himself in possession of that portion of the Sikh camp, still standing round the “Bara durrie”—literally twelve doors, a conspicuous building in the Sikh camp—and that his advance had completely turned the right of the Sikh line. As the ground about here was, however, overgrown with trees, and he was considerably in advance of the left of the infantry, it became necessary to proceed with caution. The batteries were enabled to take up fresh positions, so as to enfilade the Sikh positions and cause them considerable loss, and hasten their retreat—which soon became general. On the right of the British lines the Afghan Horse also showed considerable enterprise and activity. Here there lay a wet nullah between them and us, and they extended so far as even to get into the rear of our cavalry; and a small party of about thirty men actually had the audacity (a peculiar trait of that nation) to pass and gallop along the very rear of the line of the British army, and even approached the spot where Lord Gough, surrounded by his staff, was superintending the general movements, when his Lordship directed his personal escort, a troop of the 5th Light Cavalry, under Lieutenant Stanmer, to charge them, and they were cut to pieces after a sharp struggle. The whole of the Afghans were killed, the 5th Cavalry only having Lieutenant Stanmer and four men wounded. But though the constant manœuvring of the Afghan cavalry kept things lively on the right, no actual conflict took place.

By half-past twelve the Sikh army was hopelessly and completely defeated, and driven in disorder from the field. By one o'clock Lord Gough's troops were in complete possession of Goojerat, the Sikh camp, which had been left standing, all their baggage, and almost all their guns. The divisions of Whish, Gilbert, and Campbell passed Goojerat, leaving the town on their left; whilst Dundas, with the Bombay troops and Thackwell's cavalry, passed round to the other side. The whole of the cavalry pressed the retiring Sikhs for ten or twelve miles, and compelled them to drop more of their guns, so that they succeeded in getting away very few, and, but for the ground, which was cut up and intersected by ravines which favoured the retirement of their infantry and hindered the cavalry in pursuit, they would scarcely have been able to get away any body of men at all. Nor did the cavalry desist from pursuit till it was quite dark.

Upwards of fifty guns were captured on the field, and this splendid victory, annihilating the Sikh army, was gained with comparatively small loss—five officers and ninety-one men killed; twenty-four officers and 646 men wounded.

Gilbert, with a strong force of all arms, was despatched in pursuit,

which was pressed with such vigour that, on the 6th March, Shere Singh surrendered the European prisoners that had fallen into his hands at Attock and Peshawur, and was informed that the only terms admissible were an unconditional surrender. On the 14th March, Rajahs Shere Singh and Chuttur Singh, and the remaining Sikh leaders, surrendered themselves to Sir Walter Gilbert with the broken remnants of the Sikh army, who laid down their arms in the presence of the British troops. Forty-nine more guns were delivered up.

On the 30th March the Annexation of the Punjab was proclaimed.

REFLECTIONS ON GOOJERAT.

There are few battles of which it cannot be said that "someone had blundered," but Goojerat is one of them; it was fought with such perfection of combination of all arms that there is no fault to be found with it.

The sudden break up of Shere Singh from his strong position at Russool, and his march on Goojerat, can only be accounted for on the supposition that he hoped to cause alarm at Lahore and perhaps a rising in his favour—it was impossible that he could have crossed the Chenab and marched successfully on Lahore. Lord Gough held the interior lines, and was nearer to the fords than he was, and would have caught him in the act. The fords at Wazirabad and Ramnuggur were held in sufficient strength by us, and the Mooltan force was closing up day by day and would have also caught him. The movement on Shere Singh's part was altogether a mistake.

Both the design and execution of the attack leave little room for comment. The Artillery prepared the way vigorously and effectually, and left the Infantry little to do; it has been shown that Colin Campbell's division never fired a shot, and the only attempt made by the Sikhs to stand was at the two outposts of Burra and Chota Kalra, which were stormed by Gilbert. Thackwell's handling of the Cavalry on the left was perfect, and precisely at the right time and in the right way he delivered his attack. Supported by the fire of two "troops" of Horse Artillery and the advance of the remainder of the brigade, the two flank regiments—the Scinde Horse in first line and 9th Lancers in second—charged the Sikh and Afghan Horse, who were completely defeated and fled from the field. This success placed him on the right flank of the Sikh Infantry, and in an awkward position for those attempting to resist the advance of our centre, and precipitated their retreat.

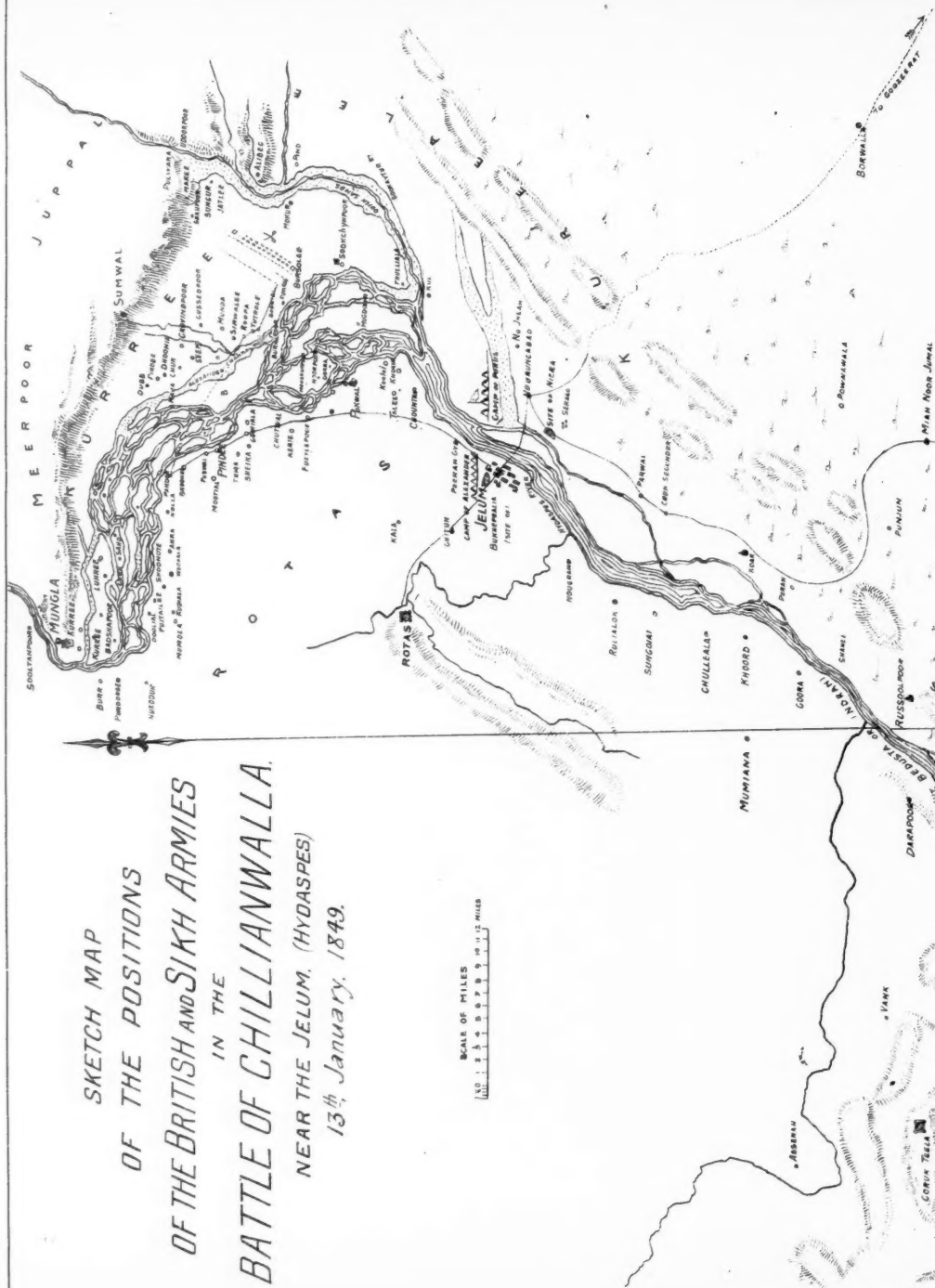
The Cavalry on our right had not the same chance, as in front of them lay a boggy wet nullah. As soon as the Infantry carried the Sikh position, the whole of the Cavalry and Horse Artillery were launched in pursuit, and pressed the Sikh retreat till quite dark, compelling them to disperse and drop many more guns, and reducing the Sikh army to a rabble.

Chillianwalla and Goojerat must be studied together; the attack in both actions was intended to be delivered in the same way, constantly

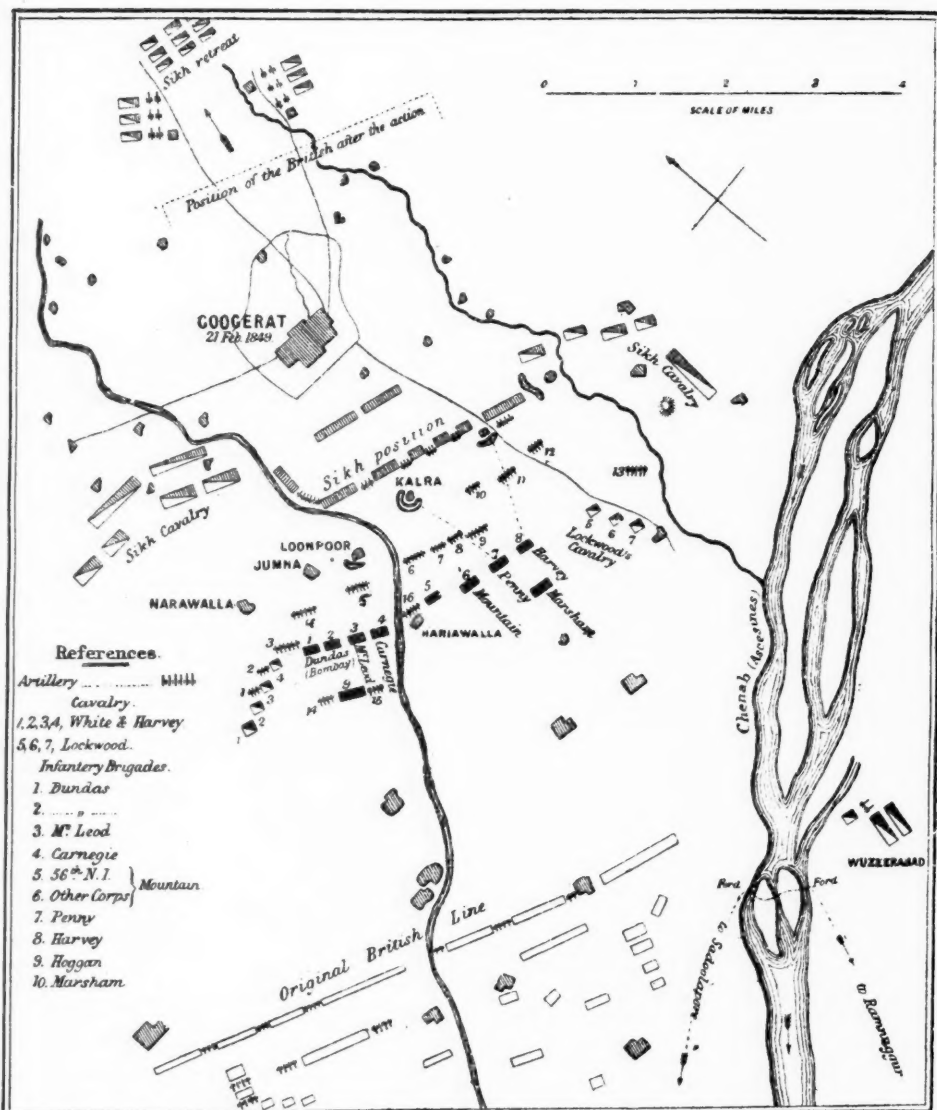
supported by Artillery fire. The lessons learnt at Chillianwalla were not forgotten at Goojerat, and the result was a glorious victory, vindicating the reputation of Lord Gough and proving him to be one of England's most successful commanders.

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SKETCH MAP
OF THE POSITIONS
OF THE BRITISH AND SIKH ARMIES
IN THE
BATTLE OF CHILLIANWALLA.
NEAR THE JELUM. (HYDASPES)
13th January. 1849.





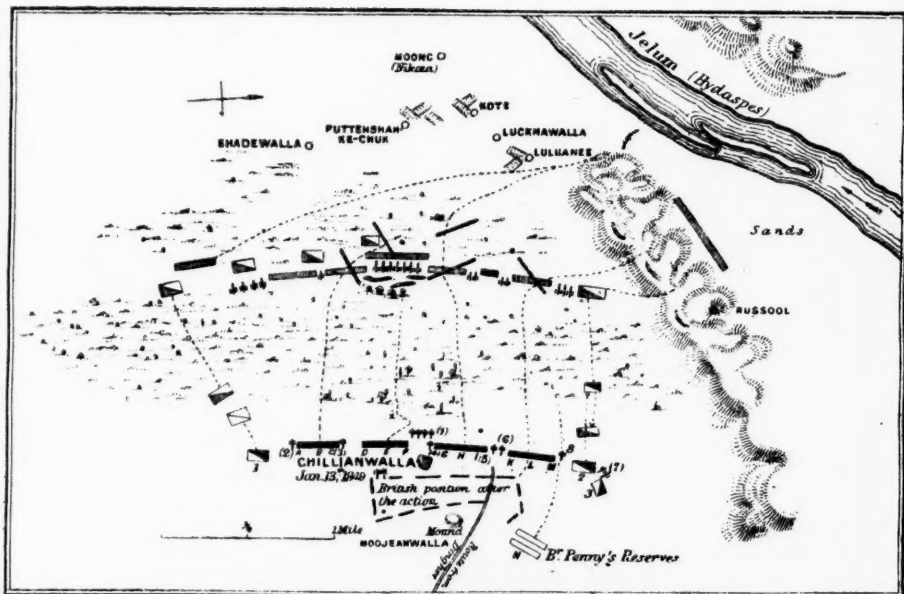


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THE BATTLE OF GOOGERAT.

The troops and batteries of Artillery in the above Plan were commanded by the following officers:—

- | | | | |
|-------------|------------------------|----------------|-----------------|
| 1. Huish | 5. Robertson. | 9. Horsford. | 13. Warner. |
| 2. Duncan. | 6. Lane previously 14. | 10. Forlyce. | 14. See No. 6. |
| 3. Blood. | 7. Day | 11. Anderson. | 15. Kinleside. |
| 4. Laullov. | 8. Dawes. | 12. Mackenzie. | 16. Shakespeare |



THE BATTLE OF CHILLIANWALLA.

CAVALRY.

- 1 White's Brigade (3rd Lt. Dragoons, 5th and 8th Light Cavalry).
- 2 Pope's Brigade (14th Dragoons, squadron of 9th Lancers, &c.)

ARTILLERY.

1. Heavy guns.
- 2, 3, 4, 5, 6, 7, 8. Field Bat. & H.A.

A 36th N.I.

B H.M. 61st

C 46th N.I.

D 46th N.I.

E H.M. 24th

F 25th N.I.

Hoggan's Brigade.

Pennicuk's Brigade.

INFANTRY.

G 30th N.I.

H H.M. 24th

I 56th N.I.

K 31st N.I.

L 2nd Europeans

M 70th N.I.

N 15th and 69th N.T. Br. Penny.

Mountain's Brigade.

Godby's Brigade

FROM LEICESTER TO LANGPORT, 1645.

*By Major G. F. BROWNE, D.S.O., Northampton Regt.,
Deputy Assistant Adjutant-General at Head Quarters.*

IN all England no town suffered more in the Parliamentary cause than Taunton. Remote from aid, in the heart of a thoroughly Royalist district, it had for seven months been almost continuously besieged. The town was an open one, its outer defences improvised by loopholing walls and houses, while breastworks and small forts were thrown up to command the approaches. These slight defences would never in themselves have been sufficient to repel the frequent and desperate assaults delivered against the town had they not been supported by the strong Castle of Taunton, which rendered any partial success of the besieging force of little or no value.

Besides the castle, the town possessed a tower of strength in its Governor, Robert Blake, of Bridgwater, the future admiral of the Protectorate. Unable to preserve his native town for the Parliament, owing to the powerful local influence of the Wyndhams, the Luttrells, and the Trevillians, Blake joined Colonel Alexander Popham's Regiment of Somersetshire men to assist in the defence of Lyme Regis; and when Goring raised the siege of that town, had in July, 1644, surprised Taunton, and since held it for the Parliament.

On the 9th May, 1645, after a series of assaults, the garrison, numbering scarcely 1,000 men, held only the castle, the church, one small fort, and an entrenchment in the market place; one portion of the town was in the hands of the enemy, the other in flames, when Lord Hopton, learning that a relieving column was at hand, offered fair terms if the town would yield, threatening if it did not surrender to storm it and put to the sword all save seven persons. The indomitable Blake gave him a characteristic answer. He would, he said, keep the town to the last man; and as for the seven men Lord Hopton promised to spare, he would, if his Lordship could oblige him with their names, send him their bodies without any unnecessary delay.¹

Two days later, Colonel Weldon, with a brigade of Fairfax's army and detachments from several garrisons, numbering in all 3,000 foot and 1,500 horse and dragoons, forced Hopton to raise the siege; but the respite thus obtained was destined to be of short duration, for a few days later Lord Goring arrived from Oxford with 3,000 horse, and, relieving Hopton of the command, resumed the siege with a force of about 8,000 horse and foot.

¹ Col. Ralph Weldon to Sir Thos. Fairfax, 11th May, 1645. Quoted by Vicars in Part IV. of his *Parliamentary Chronicle*, 1646.

On the arrival of this bad news in London, great anxiety was felt for the fate of the town. The newspapers, filled with accounts of the sufferings the garrison had already undergone, predicted that a successful assault by Goring's troops would result in a general massacre of the defenders.

Parliament was, however, powerless, Fairfax's army being fully occupied by the King, who was in the field near Leicester with 10,000 horse and foot. To weaken Fairfax's army by despatching a further reinforcement for the relief of Taunton without first bringing Charles to battle, would expose the eastern counties and London to attack by the Royal army. Such a course could not for one moment be entertained: still, public opinion demanded that an effort should be made. The Common Council of London and some of the wealthier citizens subscribed £4,000 towards raising a force, which Parliament decided should be put under the command of Major-General Massie, the Governor of Gloucester. Consequently Massie, with 600 of Major Buller's horse, marched to Romsey, where, reinforced by detachments from Kent and London, he organised a brigade of over 2,000 horse, with which he marched westward on the 27th June; but his newly-raised force being inadequate to the task, he found himself obliged to lie about Ilminster and Chard, powerless to avert what was looked on in London as little less than a catastrophe—the impending fall of Taunton.

While these events were progressing, the King, having received a crushing defeat at the hands of Fairfax on the 14th June, at Naseby, had fled with 3,000 horse by Litchfield and Wolverhampton to Hereford, where he was joined by Lord Gerard, with 2,000 horse and foot, while Prince Rupert hastened on to Bristol to prepare the city for a siege, which now seemed imminent.

Though reduced to desperate straits, the Royal cause was not without a ray of hope. The Shires of Somerset, Dorset, and Cornwall were by a large majority Royalist, and, with the exceptions of Plymouth and Taunton, every castle and fortified town in the West of England was held for the King.

A direct advance by Fairfax from the East was effectually barred by the fortress of Bristol, well stocked by a recent importation of war material from France, and the walled town of Bath, supported in second line by Sherborne Castle, and the fortified towns of Langport and Bridgwater. So long as the King held this Somersetshire quadrilateral he could, at will, transfer his troops in South Wales across the Severn, and then, either by calling Goring from Taunton, or by marching to join him, Charles would be in a position to offer battle to Fairfax with little or no disparity in numbers, or crush Massie and Welden before Fairfax could come to their assistance. For, as an ancient critic of the campaign writes, "it could not have proved worse than our being afterwards, both in the West and in other places, destroyed by pieces, without either conduct or honour."¹

¹ Sir Edward Walker's *Historical Discourses*, 1664. Published 1705.

Such, in brief, were the theoretical advantages of the situation, but the practical difficulties rendered them null and void. With a part of the army dispirited by defeat, a concentration to deliver a blow of this nature demanded the master mind of a great commander, with supreme control over the scattered fragments of the Royal army. It was the King's misfortune that there was no soldier of this type in the Royalist ranks. Several of his officers were brilliant divisional leaders, of whom the most distinguished was his rash and headstrong nephew, Prince Rupert, "who liked what was proposed, as he liked the persons who proposed it." This youthful Prince—for he was only twenty-four years of age—was nominally in supreme command, but he had not the authority, even had he possessed the military genius, to command success in such desperate circumstances. The situation, from a military point of view, was further complicated by the action of the King, who had in March sent the Prince of Wales, a boy of fifteen years of age, to Bristol to foster a loyal spirit in the West. Had the young Prince's Council limited itself to purely civil affairs, the wisdom of this step could not be gainsaid. Unfortunately, the Council had an ill-defined authority over the troops; and of this, and of his commission to command in the West, Goring took advantage to obey only such orders as suited his purpose. He would at times reluctantly obey Rupert, at times the Council, and at other times neither the one nor the other, unless the orders fell in with his own plans, already fixed on the capture of Taunton, with a mental reservation not to take part in any operations in which he did not hold the supreme command.

Rupert, young as he was, saw the folly of this arrangement, but he had too many enemies amongst the King's Councillors to hope to influence Charles in a question of this nature.¹

Though nominally on friendly terms with Goring, he both disliked and distrusted him. Goring was on bad terms with Colonel Edmond Wyndham, the Governor of Bridgwater, and with Sir Francis Mackworth, the Governor of Langport; and even between these two latter officers relations were strained. In these circumstances it was hopeless to expect any co-operation between the principal commanders in the West, yet the success of the King's cause depended on his officers subordinating their individual ambition to the common welfare. This was not to be. It was now clear that, on whichever part of the Royal army the next blow fell, that part could not hope for assistance from any other.

The blow was to fall on Goring. George Lord Goring was the

¹ Rupert to Legge, 24th March.—"Nothing troubles us but Prince Charles. I expect nothing but ill from the West." Rupert to Legge, 31st March.—"I now intend for Bristol, to rob them of their arms; and, if I had the power, of Prince Charles. His Council already send orders to Goring, and are well received. Pray desire to know of the King if he hath given them power to do so." Rupert to Legge, 13th April.—"Goring had orders to go with his horse into Wilts, or with his foot to Taunton, at which he is disconcerted, and himself gone to Bath. Lords Capel and Culpepper go to the forces with private instructions. You may easily perceive what that tends to."

elder son of the Earl of Norwich, and in his sober intervals¹ was far from a despicable enemy. Driven abroad by debt in 1633, he had seen much active service in the Low Countries, and was the only cavalry leader in England who had attempted to hold his own with the mighty Cromwell.

At Marston Moor he had completely swept Lord Fairfax's cavalry off the field. In the early spring of the year he had baffled Waller and Cromwell, in Dorsetshire. A month later, he had made a night march from Devizes, and surprised Cromwell's outposts, near Faringdon. Unfortunately for the cause which he had espoused, he was dissipated beyond hope of redemption. On the 31st August, 1644, when Essex had led his army into a trap, at Fowey, and its surrender was a question of hours, Goring, while carousing with convivial friends, had allowed the Parliamentary horse, under Sir William Balfour, to steal through his lines at night. A soldier of this type was not likely to maintain discipline in his army, nor did he; for the excesses of his troopers impoverished every district in which they were quartered, alienated the sympathies of the inhabitants, and made Goring's name an object of detestation to the Parliamentary troops.

Such was the position of affairs in the Royal army when the fall of Leicester, on the 18th June, freed Fairfax's army for operations elsewhere.

His force, all of which had been engaged in the battle at Naseby, consisted of eight regiments of foot, numbering 6,640 men, 3,780 sabres in nine regiments of horse, ten companies of Colonel Okey's Dragoons, besides the General's troop of Life Guards, and two companies of firelocks to protect the train and guns, which numbered about eleven, in all 11,500 fighting men.²

¹ Digby to Goring, 29th, March, '45.—" . . . Dear General, I have nothing to add, but to conjure you to beware of debauches; there fly hither reports of the liberty you give yourself, much to your disadvantage, and you have enemies that are apt to make use of it."

² These figures are obtained as follows: By the "State" in the Scottish Dove (E 288 (11) British Museum) Fairfax had present, on the 5th June, 7,031 foot and 3,014 horse. Besides these, 2,500 horse and dragoons were detached under Colonel Vermuyden. The units composing this force were eight regiments of foot, eleven of horse, and one of dragoons. Allowing Okey's Dragoons to be 900 strong, and deducting 5 per cent. for casualties at Naseby, sickness, and absentees, an average of 875 is obtained for each foot regiment, and 420 for each horse regiment. No account of the operations mentions the number of guns with Fairfax's army; but Sprigge, in his engraving of the battle of Naseby, shows eleven. The following entries are taken from the Commons' Journal:—6th March, 44-45, 1,038 horses will be required for the artillery train; and again, on 19th April, ordered that two brass demi-culverins and eight brass sakers, formerly in use in the navy, be employed towards furnishing the train of artillery of Sir Thomas Fairfax's army.

The difficulty of moving these heavy guns on bad roads restricted their numbers. The saker (called after a species of falcon) threw a 5-lb. shot, and weighed, without its clumsy carriage, about 15 cwt., requiring twelve horses to draw it, and twelve more for two days' supply of ammunition. The newspapers report that Fairfax had double teams to enable the guns to keep pace with the infantry.

The General in Command, Sir Thomas Fairfax, the elder son of Lord Fairfax, was an experienced soldier, honest of purpose, and possessing much of that force of character which is so frequently found in men of a cold and austere nature. It has been said that he was a mere tool in the hands of his second in command, Lieut-General Oliver Cromwell, M.P.; but this view is in no way borne out by facts. Cromwell was, at this time, purely a cavalry soldier, with a dash of the cavalry soldier's contempt for the more useful, though less brilliant, sister branch of the Service. In his recent cavalry raid round Oxford, he had been twice engaged in small affairs with hostile infantry. On the first occasion, when, having captured Bletchington House with his dragoons, he reported that he was doubtful of success, as this kind of work was not his business; and a few days later, when, having failed in his attempt to capture Faringdon Castle by storm with the Abingdon infantry, he is reported to have declared that, had he known that the Abingdon foot were the worst infantry in England, he would have dismounted his troopers and taken the place.¹

If, however, Cromwell had little experience of infantry, his recent splendid exploits in the field had stamped him as the finest cavalry leader in England. Few possessed equal boldness in action, none combined with it such rare coolness, such presence of mind, that in the tumult of battle he could, with unerring judgment, seize the exact moment to ensure success or snatch victory from an enemy. That he was consulted by Fairfax there can be no doubt, for the system of war in vogue at that period demanded that no important step should be taken unless the General was justified by a council of war. But beyond this there is nothing but conjecture to support the view that Cromwell took a more prominent part in the command than was warranted by his position.

Fairfax's army was now free either to follow the King and bring him to bay in South Wales before he could re-organise the remnants of his army, or to march to the relief of Taunton, and afterwards crush Goring in the West. Puritan England demanded that before everything Taunton must be rescued. The heroic defence of this town by Blake and his devoted garrison had excited feelings of the liveliest compassion in those who sided with Parliament. Yet Fairfax was not a free agent to employ the army as he thought fit, for the Committee of both Kingdoms, sitting in London, were responsible to Parliament for the judicious employment of the forces it maintained.

On the 20th June, the Committee, probably waiting to learn Fairfax's views on the situation, and, at the same time, wishing to warn the Earl of Manchester and other lukewarm members of the policy they intended to pursue, passed a resolution that, in their opinion, the enemy should be rigorously prosecuted in the field. The day this resolution was passed, Fairfax decided, in the absence of definite instructions, to march to Marlborough, whence he could, in accordance with the orders he might receive, either cross the Severn to operate against the King in Hereford or march to the relief of Taunton.

¹ *Mercurius aulicus* (E 258 (14) British Museum).

The army, by an average daily march of twelve-and-a-half miles, reached Marlborough, 113 miles from Leicester, on Saturday, 28th June, the intermediate stages being Lutterworth, Lillington, Warwick, Clifford Chambers, Chipping Camden, Northleach, Lechlade, and Wanborough. This march was uneventful; at Lechlade a small party of the enemy's horse was surprised while levying contributions; the garrison of Highworth Church, which had been put in a state of defence, yielded upon quarter; and Colonel Butler's horse, under the command of Major Fincher, the colonel having been dangerously wounded at Naseby, was detached to watch the right flank and to hold in check Sir Charles Lucas, "an active enemy and a good soldier," who was raiding from Berkeley Castle.

Fairfax had, in the meantime, been in correspondence with the Committee of both Kingdoms, who informed him on the 24th that he was free to employ the army as he should judge best; and on the 25th and the 26th June they expressed their concurrence in his views that Taunton could be relieved before the King could gain any considerable accession to his strength, while the advance southward of the Scottish army would hold the Royalist forces fast in South Wales.¹

From Marlborough the direct road to Taunton led through Devizes and Bath. But as has already been pointed out, this route was closed to Fairfax, who had no time to lose in undertaking sieges or storming castles. He consequently determined to transfer his base of operations to Lyme Regis and Weymouth, by which course he would not only turn the fortified line of the River Parret, but also facilitate the supply of the army. In fact, except by forwarding ammunition and stores by ship from London, there was no means of keeping the army supplied; for without strong escorts, which were not available, no convoy could hope to get through, when the main thoroughfares between London and the West were blocked by Donnington and Devizes Castle, Basing House, Winchester, and other less important Royalist strongholds.

Having despatched messengers to Taunton to inform Blake of his approach, and given the army a day's rest on Sunday, Fairfax shaped his course from Marlborough in a southerly direction, and marching twenty miles reached Amesbury on Monday night, the 30th June. Next morning the army, holding a rendezvous at Stonehenge, marched in battle array sixteen miles across Salisbury plain to the village of Bower Chalk.

On Wednesday, the advance was continued to Blandford, some sixteen-and-a-half miles distant. *En route* a soldier was hanged to a tree in a narrow lane for plundering a gentleman near Marlborough. Messengers arrived in the night from Taunton with the news that Goring, having burnt his huts, was withdrawing from the siege and concentrating near Blackdown.

¹ The Scottish army was, at this date, engaged in besieging Carlisle, and when that town surrendered on the 28th June was very slow in marching southwards, not reaching Canon Frome, near Hereford, until the 22nd July.

On Thursday, the 3rd July, the army reached Dorchester, after a tedious and very hot march of sixteen-and-a-half miles. Here the Governor of Weymouth, Colonel Sydenham, waited on Fairfax, and informed him of the high-handed proceedings of the clubmen, who would not permit supplies to be furnished to the Parliament's garrisons. A few hours later Mr. Hollis, who claimed to be the chief leader of this society, demanded a pass from the General to carry petitions to the King and Parliament. The substance of these petitions was that there should be a cessation of hostilities, and that pending the receipt of a reply, the seaport garrisons should be made over into the custody of the petitioners.

It was generally believed by the Parliamentary party that this society of clubmen was virtually a Royalist organisation, but there is no evidence to prove that it furthered the Royalist cause. The history of Dorsetshire, Wiltshire, and East Somersetshire, during the eventful years of 1644-5, was in itself more than sufficient to explain the necessity for an organisation whose ostensible objects were "to arm the people, to set watches, to be quiet with them that are so, and to seize and bring disorderly soldiers to the nearest garrison." In fact, the early efforts of the clubmen were directed towards checking the licentiousness of Goring's and Prince Maurice's troops. As time went on, a few men of position, clergymen, esquires, and gentlemen became the moving spirits in the organisation, and it does not appear improbable that these leaders may have had ulterior views: indeed, the fact that they demanded that the fortified seaports of Dorsetshire and Wiltshire should be put in their hands rather points to this being the case.

On Friday, the 4th July, Fairfax replied in writing to the club commissioners, assuring them that the object of the war was to obtain peace, which he would take all lawful and fit means to procure. He was firmly determined to repress all plundering and violence, and promised that, on complaint being made to him, he would bring the delinquents to justice, adding "of which some reasonable testimony is already given by this army in its quiet and orderly passage through these and other counties." There were, however, he remarked, portions of the petitions which he could not countenance, more especially the demand to give up the seaport garrisons, for this would endanger the existence of the Kingdom, seeing from the King's correspondence captured at Naseby that negotiations were on foot to bring French and Irish troops into the country. This diplomatic refusal given to Mr. Hollis and his coadjutors, the army marched sixteen-and-a-half miles to Beaminster, which was found to be almost entirely burnt down by Prince Maurice and Goring's troops, while the neighbouring country was desolate in the extreme. In the words of a soldier whose letter was published in a newspaper at the time, "one could pass ten miles and discern nothing; rich pastures, but no cattle left to eat them."¹

During the afternoon trustworthy reports were received that Goring having raised the siege, had moved to Ilminster and Ilchester, with a

¹ E 285 (10).

view to holding the passages of the Rivers Yeo and Parret; consequently Colonel Fleetwood's and Colonel Rich's regiments of horse were sent on to Broadwindsor, with directions to scout towards Crewkerne, where they captured an Irish cornet, who, on being brought to headquarters, corroborated the information already received regarding Goring's movements.

Fairfax's army was weary with long and tedious marches, for the weather had been exceedingly hot. It had marched eighty-five miles during the last five days, an average of seventeen miles a day, under a blazing sun, over very hilly roads; and since leaving Leicester had, with one day's halt, covered 196 miles¹ in fourteen days—a brilliant march for a heavily-armed force, occupying on the march nearly five miles of road.²

The area in which the operations were about to take place was the extensive low-lying plain drained by the River Parret and its tributaries the Yeo, the Isle, and the Tone. (See Map II.) The Parret is unfordable from one mile above South Petherton, and though the Yeo is fordable at many points between Yeovil and Load Bridge, the moors—as the marshes are locally called—are so intersected by an intricate network of deep, broad drains, that the march of troops is practically restricted to the main roads.

These roads, at intervals of about five miles, led to seven passages over the river. The most easterly was effectually blocked by the strong castle of Sherborne, which a month later held out for a fortnight against Fairfax's army, while the most westerly was guarded by Bridgwater—a fortress strong by nature and art, and justly considered at this time as the key of the West. The little fort at Borough Bridge, and the walled town of Langport, denied two other passages to Fairfax; thus leaving three points, at Load Bridge, Ilchester, or Yeovil, where the passage of the river might be forced.

At 4 o'clock on Saturday morning, the 5th July, Fleetwood's and Rich's horse, marching from Broadwindsor and Crewkerne to cover the advance, came into touch with the enemy near South Petherton. With the loss of a few prisoners Goring's troops retired, and destroying Petherton Bridge took post under cover of some breastworks, which had been previously thrown up to defend it. Fleetwood sent back for reinforcements, and though the infantry had only just reached Crewkerne, "wearied by a long march, the road ill and narrow through an enclosed country, the carriage horses tired out, when a brigade was ordered to the front the men leapt for joy that they were like to be engaged." Meanwhile, three regiments of horse were at once despatched to Fleetwood's assistance, but before these reinforcements could arrive the enemy had evacuated the position; so the Petherton Bridge was repaired, and the pursuit

¹ The official "Distance Map" makes this march by road 199 miles. The above distances are from measurements on the 1-inch Ordnance Survey.

² 10,000 foot marching ten in front, 1,000 horse marching five in front with the lightest baggage they can possibly have, and ten cannon with equipage for every piece to shoot 100 bullets, take up 23,000 foot of way. (Extracted from "The Complete Captain," Englished from the French by J. Cruso.)

continued by the cavalry to Load and Ilchester Bridges. Fairfax and Cromwell now rode to the front to view the enemy's positions.¹ They found the bridges destroyed, and buildings and entrenchments, commanding the passages, occupied by infantry, so judging it hopeless to attack with the force at their disposal they posted strong guards of horse to watch the passages, and returned to Petherton to consult with Colonel Welden and Colonel Graves, who were expected to ride over from Taunton that evening.

The position at nightfall was as follows:—Goring held the line of the Rivers Yeo and the lower Parret from Yeovil to Bridgwater facing south; Yeovil, Ilchester, and Load Bridges being destroyed. Cromwell's cavalry watched the passages at Load Bridge and Ilchester, with reserves at South Petherton and Martock, to cover the infantry which lay at Crewkerne, with an advanced brigade at South Petherton; Massie, with 2,000 horse, occupied Ilminster, while Blake and Welden's brigade remained in Taunton.

During Sunday the army rested in its quarters, being joined that night by Massie's and Welden's brigades. Fairfax had now, including Colonel Butler's horse, which rejoined him on Monday, upwards of 16,000 men² at his disposal for active operations, exclusive of the garrison of Taunton, while Goring could scarcely have had more than from 8,000 to 7,000 horse and foot under his command.

Early on Monday morning Fairfax and Cromwell rode on to view the river. They found the position of affairs unchanged, the passages being still strongly held by the enemy, who kept up a dropping fire with the Parliamentary horse. A council of war was therefore held in the field, at which it was decided to leave a sufficiently strong force at Ilchester and Load Bridge to hold the enemy and prevent him taking the offensive, while the bulk of the infantry forced a passage at Yeovil, which was reported to be held by a party of dismounted cavalry. In accordance with this decision, the infantry at Crewkerne marched on Yeovil, which, on their approach, was abandoned by the enemy. The town was thereupon occupied and the bridge repaired. The line of the river was now turned, and as was to be expected, reports were received early on Tuesday morning, the 8th July, that Goring's troops had evacuated Ilchester, setting fire to the bridewell which commanded the bridge, but leaving the works undemolished. The infantry accordingly marched to Ilchester

¹ In old military works the verb "to view" is used for the more modern "reconnoitre."

² We read very little about Parliamentary reverses; but as Colonel Welden lost two battalion commanders, killed during the siege, there can be little doubt that his brigade suffered severely. A deduction of 10 per cent. for nearly two months' marching and fighting is not greater than Welden's losses may reasonably be supposed to have been. Fairfax can scarcely have made a series of forced marches in the middle of July (ten days must be added to all dates to obtain the equivalent date in our calendar) without having dropped at least 5 per cent. of his force, for it must be remembered that the infantry soldier was heavily weighted with a back, breast, and helmet of iron.

by the left bank of the river and occupied the town that night. There Fairfax learned that Goring, with a force of cavalry, had left Langport, hoping to take Taunton off its guard. He immediately despatched orders to Massie, who was at South Petherton, to move by Ilminster and nip this project in the bud.

Early on Wednesday morning the General, thinking it well to reinforce Massie, despatched Colonel Sheffield's and Sir R. Pyc's regiments of horse, together with nine companies of Colonel Okey's dragoons to Ilminster, while the remainder of the army moved on Long Sutton. During the afternoon the sound of distant firing, from the direction taken by Massie, seems to have had a disquieting effect on Fairfax, for he decided to further reinforce Massie. On this occasion Colonel Montague,¹ who was at Martock, was ordered to take the musketeers of his own, Fairfax's, and Pickering's regiments, and, escorted by Ireton's horse, to hasten to Massie's assistance.²

Meanwhile, the main body of the army occupied Long Sutton, where at the further end of the town, towards Langport, Rainsborough's brigade of infantry came into contact with the enemy and skirmished with them as far as Pisbury Bottom.

Fairfax had now divided his army into three parts. He had, at Long Sutton, under his immediate command nine regiments of infantry and seven regiments of horse intact, with one company of dragoons and the pikes of three infantry regiments, about 10,600 men in all, of which 2,800 were cavalry. Massie, near Ilton, had 3,600 horse and dragoons; while between these two forces, and powerless to assist either Massie or Fairfax, was Montague, with about 1,700 horse and foot.

The position certainly does not reflect any great credit on Fairfax's generalship. With an overwhelming superiority in numbers he had so manoeuvred that on the eve of a general engagement he found himself but little superior to his adversary. But great as was the advantage Goring had gained over Fairfax, he was destined to throw it away through his unsoldierlike habits and inveterate carelessness. Massie, delayed by having to repair a broken bridge,³ arrived at Ilton on Wednesday afternoon, and there learnt that Goring, who could scarcely have left Langport on Tuesday, as reported to Fairfax, had halted his force in the neighbourhood of Isle Abbots. The horses were grazing, some of the men bathing, others sleeping, when they were rudely awakened by Massie and his dragoons thundering into the camp. The panic-stricken force disappeared in all directions; some succeeded in gaining the shelter of Langport. Amongst the more fortunate was

¹ Afterwards Earl of Sandwich. At this time he was a young man of twenty-four years of age.

² Ireton was not present, having been severely wounded at Naseby.

³ Okey's and Buller's dragoons carried picks, shovels, and tools, for the repair of bridges, loopholing of walls, etc., besides palisades to form obstacles against cavalry. Newspaper correspondents describe these dragoons "as good as any in the world." [See E 293 (1).]

Goring himself, who escaped with a slight wound and a loss of fifty troopers killed and 200 captured, together with 300 horses.

At the first streak of daylight on Thursday, the 10th July, Fairfax's army was under arms in Sutton fields. The position was not free from difficulty, the army had outmarched its supplies, and little could be obtained from a district which had for the last year been constantly overrun by the contending forces.¹ One thing was clear: Goring must be brought to action, for to allow him to retire intact would mean the siege of Bridgwater being carried on, with an active leader in the field, to so delay operations that time would be afforded to the Royalist forces to concentrate for its relief. It is true that scouts reported that Goring's horse was posted on Ham Down (Map III.) with a view, apparently, to bar Fairfax's advance, yet the information derived from peasants that he had sent his guns, baggage, and other impedimenta to Bridgwater pointed rather to an intention to slip off, if he could, without a fight. In these circumstances the inevitable council of war was summoned to solve the problem of how the enemy was to be forced to offer battle. While in the act of deliberating, however, scouts brought intelligence that Goring was moving his infantry from Langport to the support of his horse. The only points for decision by the council having been settled by the enemy, messengers were at once dispatched to request Massie to send all available forces to Long Sutton, and orders were issued for a general advance, while Fairfax and Cromwell rode forward to the windmill to view the enemy's position.

There can be no doubt that Goring's sudden determination to oppose Fairfax was an error. Part of his troops had been defeated the day before, and the fact that his guns and baggage had been despatched to Bridgwater must have had a dispiriting effect on his men, who could only regard this measure as preliminary to a general retreat. Possibly he was lured to tempt fate by the hope of gaining an unaided victory over the army which had defeated his rival, Rupert, at Naseby; or the strength of the position he had occupied may have led him to overrate his tactical skill to extricate the troops, should the fight turn against him. The position certainly was strong. In front was a small valley with a strip of enclosed meadows, about 300 yards wide in the bottom, through which flowed a fordable stream, while the right flank was protected by the marshy valley of the Yeo. The real strength, however, of the position lay in the difficulty of bringing the Parliamentary cavalry into action.

The only approach to Ham Down was by a narrow track across the enclosed portion of the valley, intersected midway by a ford some three feet deep. The hedges flanking this lane, as well as those covering Goring's front, were lined with musketeers, while the main body of his infantry and cavalry crowned the summit of the Down. Should the Parliamentary infantry succeed in driving Goring's musketeers from the valley, it would

¹ "We could not well have necessitated him (Goring) to an engagement, nor have stayed one day longer without retreating to our ammunition and to conveniency of victual." Extract from "Cromwell's Letter," E 292 (18).

be difficult, if not impossible, for them to advance on to the open Down unsupported by cavalry, or by a formed body of pikes—for in 1645, and for many years later, infantry, without bayonets and with slow-loading muskets, were at the mercy of mounted soldiers—while if Cromwell sent his horse to their assistance it would have to attack, as it debouched from the lane on a narrow front, with Goring's formed cavalry prepared to swoop down on it from the higher ground.¹*

Such was Goring's position when, between ten and eleven o'clock, Fairfax had formed his army on the eminence which rises above the hamlet of Pisbury.

The engagement opened with an artillery cannonade. Fairfax's guns, playing across the valley, swept the sides and summit of Ham Down, and speedily silenced the two small falcons which the enemy had posted to command the lane. A hot, rapid fire was maintained for about an hour, under which Goring's troops showed signs of unsteadiness by withdrawing from the crest of the hill. Nor could they be persuaded to move down the side of the valley to reinforce the musketeers, who were now hotly

¹ The exact spot at which the Parliamentary troops crossed Pisbury Bottom cannot now be identified. After viewing the ground, I am inclined to think that the passage occurred midway between Pisbury and Wagg Bridges. It is more than improbable that the present road from Pisbury to Langport was in existence in 1645, beasts of burden and country carts avoiding the low country, may, it is conjectured, have passed by a rough track from the neighbourhood of the Windmill across Pisbury Bottom. A map, made towards the end of last century, to accompany Collinson's "History of Somersetshire," does not show a road between Pisbury and Langport, and though the first ordnance map, drawn about 1807, does mark this road, it shows that it was, at a comparatively recent date, unbridged, and evidently only a country track. This road passes over level ground, there being no hill answering the description of that up which Bethel charged. The passage at Wagg Bridge must, I think, be rejected, because several eye-witnesses describe the action as taking place in Pisbury Bottom. With two local names—for the ascent from the east end of Wagg Bridge is known as Pitney Hill, called after the village of Pitney, some half-mile distant—it is difficult to understand why the old chroniclers should misname this locality, if it was the point of passage, Pisbury Bottom, Pisbury being an insignificant hamlet, which would escape the observation of a force moving from Long Sutton on to the Somerton-Langport road. Another objection to Wagg as the point of passage is the small quantity of water in the stream. The summer of 1645 was a very hot and dry one, but last summer was a wet season. Making every allowance for the ford being deepened by traffic, it is impossible to believe that the stream at Wagg could ever be deep enough to take a horse up to his girths; yet Cromwell and all narrators agree as to its depth. On the other hand, lower down, where the valley is practically level, there is ample water now lying in lateral drains to make the stream a fair-sized one, were the water all lying in one channel, as it doubtless was in 1645. A further reason in favour of the lane being midway between Wagg and Pisbury is that several narrators of the fight mention a windmill near which the General took up his position. The only windmill now existing in the neighbourhood is that on the rising ground to the north of Pisbury. From a short distance in front of this windmill a capital view of the enemy's dispositions would be obtained. Of course, the existing windmill may not be the one referred to in old narratives, but the chances are in favour of its having been rebuilt on the same site as the above-mentioned mill.

engaged, for at noon Fairfax had ordered Colonel Rainsborough, with a commanded¹ party of 1,500 musketeers, with Colonel Welden's regiment in support, to advance to the attack, and drive the enemy out of the valley.

Advancing at the double, Rainsborough's men dashed at their adversaries, who stood their ground. The fight waxed hot, but after an hour's struggle the Parliamentary musketeers, having driven back Goring's troops from hedge to hedge, at last gained possession of the ford and the enclosures beyond, which gave them command of the approach to the Down.

The critical moment of the fight had now arrived. Unless Cromwell's cavalry was thrown on to the enemy it would be still possible for Goring to slip away unharmed. The enterprise was one of extreme delicacy. To gallop through a narrow lane, ford a stream, deploy in the face of the enemy, and charge was no easy task. It was one in which only the highest trained cavalry, with the boldest of leaders, could hope for success. Cromwell possessed both, and both were of his own making, for his famous regiment of horse, distinguished alike for its discipline and valour, was in the field and with it the officers who had followed him to victory at Winceby, at Gainsborough, at Marston Moor, at Islip, and at Naseby.

This was the first occasion on which Cromwell himself did not in person lead his troops into action. To Major Christopher Bethel, a valiant swordsman, with three troops of Whalley's horse, fell the honour of leading the attack, closely supported by Major Desborough, with 300 sabres of the General's regiment.²

Dashing through the lane and across the ford, Bethel, with his leading troop half formed, vehemently charged Goring's horse, and, notwithstanding the enemy's superiority in numbers, threw the front division into disorder. Under cover of this bold attack, Captains Evinson and Graves led their troops into the fight; but the combat was unequal.

¹ Selected.

² The regiment of horse, commanded by Major Huntingdon, is generally spoken of as Cromwell's regiment, because Sprigge shows him in his order of march as its colonel. The facts are as follows:—On the reorganisation of the army by Fairfax and Skippon, Cromwell, as a member of the House of Commons, was not given the command of any regiment, as was usually the case with general officers. The regiment he had himself raised and trained consisted of twelve troops, and was, on the organisation of the model army, divided into two regiments of horse, known as the General's (Sir Thos. Fairfax's) regiment and Colonel Whalley's regiment. When Parliament signified its pleasure that Cromwell, notwithstanding the Self-denying Ordinance, should continue in military employment, Fairfax gave him command of the regiment vacated by the resignation of Colonel Vermuyden; but Cromwell, leaving the command to Major Huntingdon, does not appear to have identified himself in any way with this corps. No soldier is impartial when his own regiment is concerned, and Cromwell, being no exception to the rule, selected what had been his own regiment for this critical affair, viz., the General's and Colonel Whalley's regiments.

Both the weight of numbers and the advantage of the ground began to tell. But Ironsides' men,¹ accustomed to victory, would not be shaken off. Closely fighting, they gradually gave ground, until Desborough hurled his 300 horsemen into the enemy's flank, and thus restored the balance of the fight. At this juncture Rainborough's men, driving the enemy's musketeers before them, approached within musket shot of the hostile cavalry, and opened a withering fire upon them. This sealed the fate of the day. The front divisions of the enemy broke back on the reserves. Then all fled from the field in confusion, several of the infantry regiments without firing a shot. So rapid was the retreat that the fight was over before Cromwell, who had led forward the main body of the cavalry, could bring it into action. He at once despatched Bethel and Desborough to pursue the enemy along the right bank of the River Parret, while finding that Langport had been evacuated by the enemy—for Sir F. Mackworth had declined to hold the town with less than 800 men, and these Lord Goring could or would not spare him—he put himself at the head of Colonel Graves' regiment of horse and a company of dragoons, and, requesting Fairfax to send, as a support, two regiments of foot, followed the enemy through Langport. In the confusion of flight, Goring had neglected to destroy Langport Bridge, but his men had, in the hope of delaying the pursuit, set fire to the houses on both sides of the narrow street which led to it. "Though the fire burnt very violently on both sides, so that many durst not venture," Cromwell led the horse down the burning street, and, gaining the bridge, followed the enemy along the left bank of the river. Goring, with 1,000 horse, had taken this road, but, having in his rear the strongest incentive to speed, succeeded in gaining Bridgwater in safety, leaving in Cromwell's hands two guns with ammunition wagons and a few hundred men and horses. On the right bank of the river the enemy made a feeble stand at Aller Drove, but were, with considerable loss, eventually pursued by Bethel to within a few miles of Bridgwater.

As a newspaper correspondent of the day quaintly remarks, the majority of Goring's soldiers "owed their safety to hedges and heels," for the country being much intersected by dykes and banks, the troopers slipping off their horses, joined the foot, and found safety in the close country, whither the pursuing horse could not follow. Notwithstanding this, the fruits of victory were some 1,800 prisoners, 1,200 horses, thirty-two colours, and two small guns, gained with a loss of three officers

¹ As pointed out by Gardiner in his admirable *History of the Great Civil War*, the nickname of Ironsides was at this time applied to Cromwell and not to his soldiers. Referring to Cromwell's attack on the enemy's right at Marston Moor, and on their left at Naseby, an old chronicler writes [in E 288 (38)]: "He (Cromwell) hath now given Rupert his other Ironside."

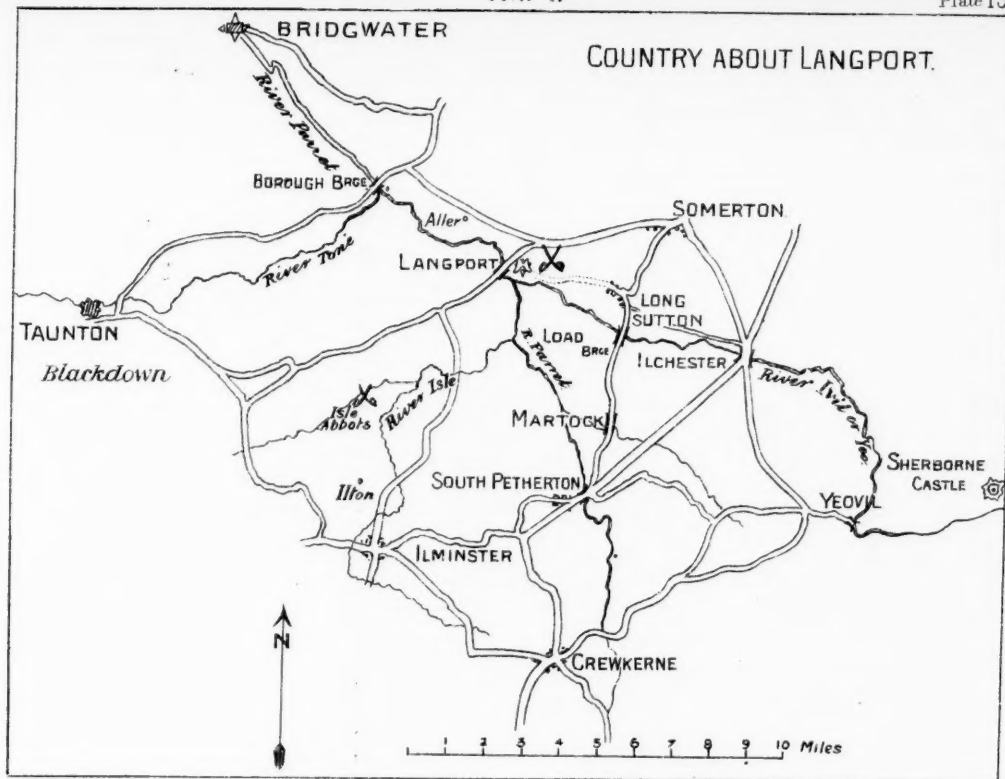
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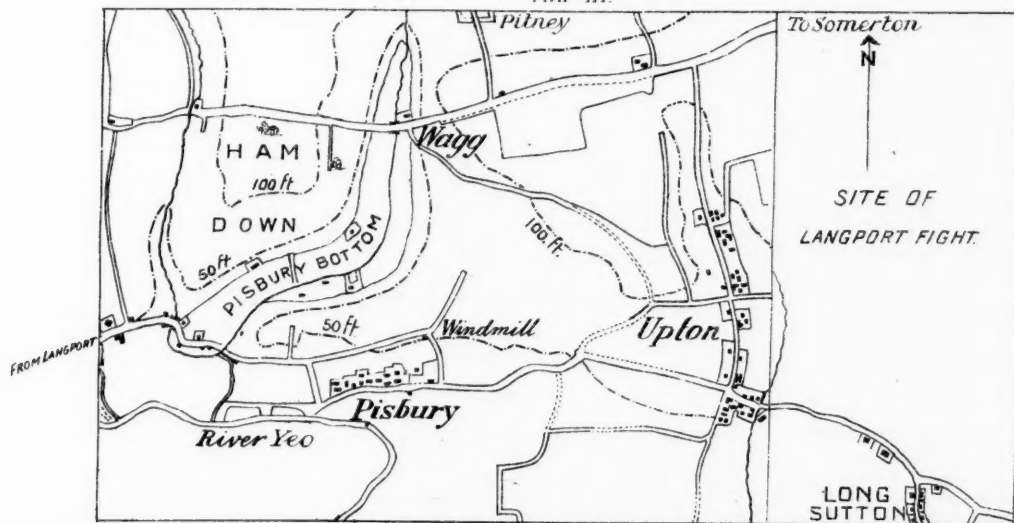
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MAP III.



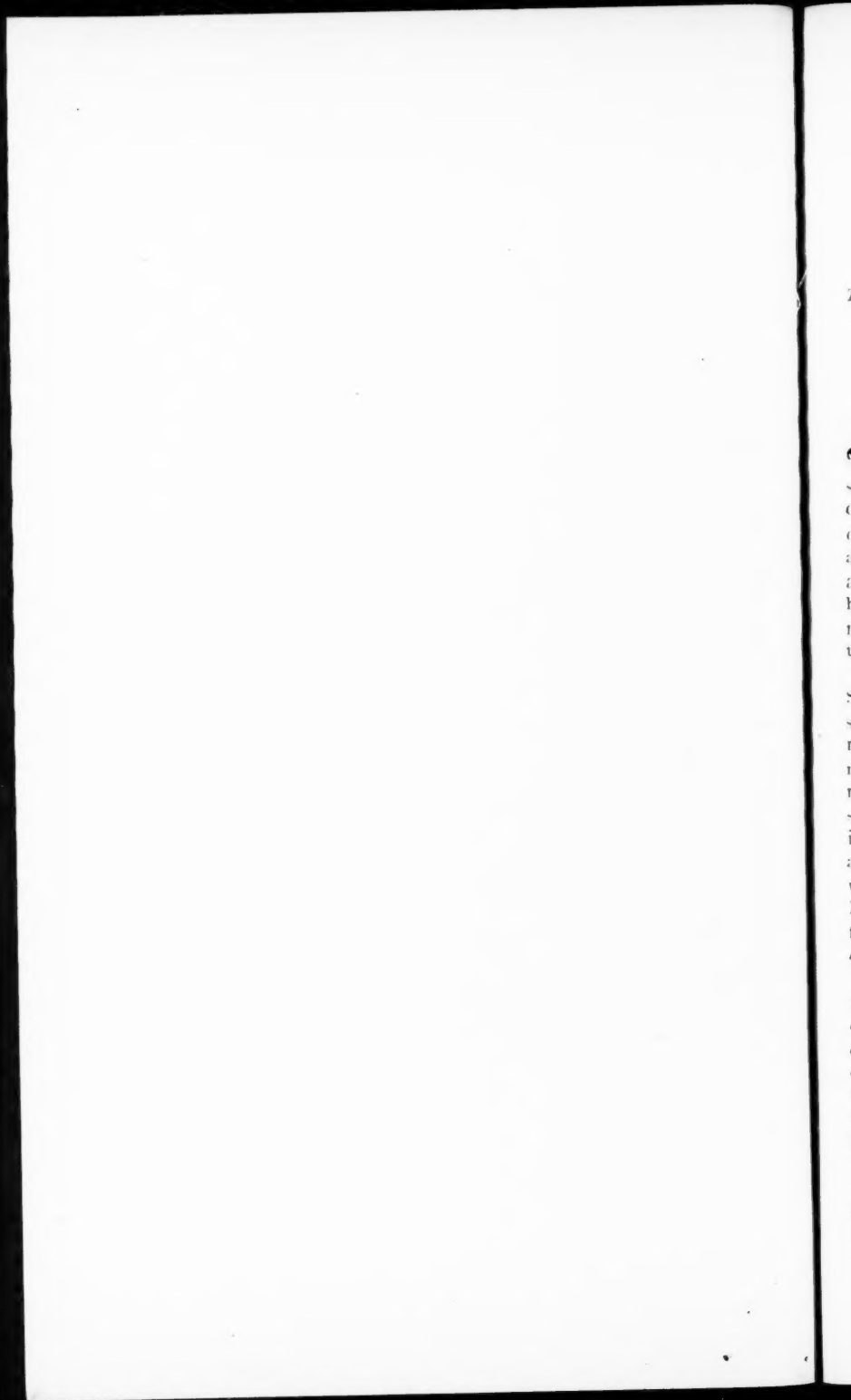
SCALE OF MILES.



and some fifty men killed, chiefly in Major Bethel's troop, he himself having his hand shattered by a musket ball.¹

The importance of this victory, however, cannot be gauged by the loss of victors or vanquished. Langport fight swept away the King's last chance of regaining his kingdom by force of arms. The end was nigh : it might yet be delayed by sieges or the remoteness of the scattered fragments of the Royal army ; but the sword, as an offensive weapon, was struck for ever from the unfortunate King's hand. Unfortunate in his councillors, doubly unfortunate in the leaders of his troops, who sacrificed his cause to their own miserable intrigues, he was happy alone in the truly Royal fortitude which never deserted him in the dire hours of trial, and which enabled him to bear with unshaken constancy the merciless blows of fate.

¹ The newspapers rang with praises of Bethel and his gallantry. Colonel Lilburne, in his narration of the fight before the House of Commons, said that he heard the General (Fairfax) and the Lieut-General (Cromwell) say that "it was one of the bravest charges they ever beheld." Parliament voted Bethel £200 for his gallantry, which he did not live to enjoy. Exactly two months later Bristol was taken by storm : the pioneers had made a practicable path for cavalry over the rampart, and, as Bethel rode into the works at the head of the leading troop, he was greeted with a volley, and fell pierced with bullets.



FOREIGN SECTION.

BISERTA.

Translated by permission from the "Mittheilungen aus dem Gebiete des Seevesens."

By CAPTAIN H. GARBETT, R.N. (Ret.)

ABOUT two years ago, the attention of Europe was called to the small town of Biserta, lying on the North Coast of Tunis, and up to that time not considered of much importance, by a series of questions addressed in the Italian Chamber of Deputies to the Government by General Count dal Verme and other members, in view of the fact that France, tempted by the unusually favourable position and strategical importance of the place, might easily and quickly, at a small expenditure, convert the silted-up port of Biserta into a modern harbour and fortress of the first class, as to what corresponding measures, if any, especially on the Island of Sicily—which would be one of the first places threatened in the event of war—were in contemplation.

General dal Verme wished to see the erection of new fortifications in Sicily, as well as landing places at Villa San Giovanni on the Calabrian side of the Straits of Messina, the completion of the strategic roads and railways, both in Sicily and on the mainland, as well as the provision of mobile batteries, which could be moved by rail from point to point as requisite for defence against attempted landings. Other Deputies suggested the fortification of Cagliari and Trapani, situated as they were immediately opposite Biserta, while one Deputy maintained that the first and most pressing necessity was the strengthening of the Italian Fleet, in which opinion he was strongly supported by Admiral Racchia, the Minister of Marine, who urged how imperative it was to increase the fleet, which alone could be depended upon for defending the wide extent of coast of the kingdom.

According to the formal declaration of the French Government, there was no intention of converting Biserta into a naval arsenal, and in carrying out the magnificent harbour works—the construction of which had been entrusted to the newly-constituted "Compagnie du port de Bizerte"—the object was simply to divert the trade of the Interior of Africa from Tunis to the much more conveniently situated port of Biserta. It may, therefore, be of interest to give here a short description both of the past and the present condition of the town.

The ancient town of Biserta lies on a peninsula between the Mediterranean Sea and the Lake of Biserta, in the northern-most part of the African Continent, at the point where it most nearly approaches Sicily. Situated at the very narrowest part of the Mediterranean Sea, which, it may be said, here separates into its western and eastern

basins, Biserta commands the entire maritime trade which passes between the two parts of the sea in question, so that, in this respect, Biserta may be placed in the same category as Gibraltar and the port of Suez.

It is, therefore, not surprising that Biserta had, even in ancient times, acquired a flourishing position and a commanding influence. Biserta (the ancient Benzert of the Arabs) is a name of Phœnician origin, and the inhabitants of Tyre founded, on the site of the modern Biserta, the town of Hippo-Zartius. Diodorus of Sicily named the town Hippo-Akra, and its inhabitants Hippokrines. The excellent position of the town greatly favoured the development of the colony. The lake, protected from every wind, was, even in those days, connected by a canal with the Mediterranean Sea. Agathocles, 317 B.C., in his wars against the Carthaginians, surrounded the town by a wall. During the Lybian War, 240 B.C., the inhabitants of Hippo were compelled to yield the city to mutinous mercenaries, but Hanno, the best general of Carthage, soon besieged it and forced it to capitulate.

The Romans called the place Zaritus, whilst the lake was known to them under the name of Sisara Lacus. In the year 662 A.D. Biserta fell into the hands of the Arabs, who, driven out of Spain, finally established themselves there in the year 1492 A.D., and brought the trade of the town to a very flourishing condition. Under the government of Hamud Pascha Biserta was repeatedly bombarded by the Venetian Fleets, first in 1784 and then in the following year, when the Venetian admiral Emo set the place on fire and destroyed it. In 1786 followed another bombardment. Since that time Tunis has been governed by the Beys with varying fortune, and Biserta remaining unnoticed, by degrees fell into ruin. Its harbour became so silted up that by the year 1832 even vessels of small draught were obliged to discharge their cargoes at a long distance from the shore in the roadstead, which afforded no protection from either wind or sea, especially during the prevalence of heavy northerly or north-westerly gales, when many vessels were wrecked on the surrounding reefs. At that time the population of Biserta did not exceed 10,000, whilst the town itself did not present an attractive appearance, its streets being dirty and badly paved, as is the case in all Eastern towns, and no active trade movement was noticeable.

In the year 1832 Mons. Louis Franc drew attention, in the *Extrait de l'Univers Pittoresque*, to the remarkable natural phenomenon, viz., that the great mass of water in Lake Biserta was frequently carried with a rapid current through the Canal into the Mediterranean Sea, and in the same manner was brought back again into the lake. Originally this phenomenon was ascribed to the influence of spring tides only; but later on it was asserted that these currents were the natural consequence of the changing levels in the water of both basins, caused, on the one hand, by the fall of river and rain water into the lake, and, on the other, by the winds, tides, and other currents of the Mediterranean Sea.

After France assumed the Protectorate of Tunis in 1883, she at once turned her attention to this important place. The marvellous position of the town—which has often been compared to that of Venice—its healthy climate, its rich and fertile neighbourhood, and also the valuable lake fisheries, had long ago attracted numerous settlers to Biserta. A failure of the water supply need never be feared, as by a remarkable caprice of Nature the near-lying fresh-water lake of Iskeul, which is connected by a canal with Lake Biserta, constitutes, so to speak, a natural gigantic reservoir. (Map I.) The French occupation, however, had lasted nearly ten years before France thought of obtaining any advantage from the position of Biserta. And when they entered upon certain small important harbour works, Lord Granville confined himself to formulating a note, recapitulating the rights of English mercantile vessels secured by the Treaty concluded in 1875, if France should ever undertake the construction of a deep ship-canal to Lake Biserta.

Map II. shows Biserta at the time of the French occupation. Léon Journault, who visited Biserta at this time, describes it as one of the most charming spots in the world; the harbour forming, by the junction of the waters of the lake of the same name with the Mediterranean Sea, a circular inland basin. Several canals divide the town into three parts, in the first of which are situated the Commandant's house, the barracks, and magazines; a stone bridge connects this part of the town with the second, which is the proper European quarter, and here are the officers' club house, the post-office, and other buildings. The third part constitutes the Arab town, with its bazaars and a fort. For the convenience of traffic wooden foot-paths are laid in the latter.

The neighbourhood of the town is covered with gardens and fruit plantations, amongst which the vineyards especially enjoy a great reputation throughout Europe. The wealth of fish in the lake is immense, and up to the present time has been but little drawn upon. From statistics published, it would seem that the catch of fish in Lake Biserta yielded, in 1892, 505,220, with a weight of 365,396 kilogrammes.

Abel Couvieux travelled through Tunisian territory in March, 1883, and was so taken with Biserta, that he immediately applied for a concession for the construction of important harbour-works there. His plans were not, however, at once accepted, because the direction of the line of railway, which was to connect Biserta with the capital of Tunis, had not then been finally decided upon.

In 1885 the French Government decided to establish a torpedo station at Biserta. But as at that time the port had not a depth of water sufficient for even torpedo-boats, the harbour and canal were deepened to 3 metres (9 ft. 9 in.).

In spite, however, of these costly dredging operations, the bar at the entrance to the canal once more speedily silted up. It was then decided to continue the northern breakwater to a distance of 250 metres seawards. This work was carried out by the newly-formed company (the

"Compagnie du port de Bizerte") for 120,000 francs. From this time on, the operations have rapidly advanced. In 1886 the construction of quays was commenced, and the depth of the harbour was still further increased. To lengthen the old breakwater, which was thrown out from Fort Kazba, a stone mole, with a length of 1,000 metres, was taken out to sea, in an easterly direction, to a depth of 13 metres. At present another stone breakwater is being carried out, from the south side of the port, for a distance of 1,000 metres in a northerly direction. Between the ends of these two breakwaters there is a passage with a width of 420 metres. The outer harbour thus made between the two breakwaters has an area of 100 hectares (about 240 square acres), and secures a waterway through the new canal under all conditions. The canal, which forms a narrow pass, can be easily rendered quite inaccessible by a few forts, and leads to a harbour, which cannot be threatened from the sea, and where all the fleets of Europe could ride at anchor, protected from any kind of bad weather. For the protection of the harbour works several batteries are being thrown up at the mouth of the canal and on the neighbouring heights of Djebel Smedia, the terrain of which affords extraordinarily favourable positions. On the near-lying Cape Blanco there has been erected a fortified semaphore station, which is connected with Biserta by telegraph.

The new canal will have a width of 60 metres and a depth of from 7 to 8 metres (23 to 26 feet). The excavated material is being used for an embankment on the south side of the harbour, where it is proposed to form a new quarter of the town, laid out according to modern ideas. The southern mouth of the canal lies opposite Cape Zebra, where a lighthouse is being built to mark the entrance to the canal.

Map III. shows the new port works as they will appear on completion in the near future. On the northern bank of the canal a stone quay is being constructed, and alongside of this vessels with a draught of 23 feet can at all times, without delay, be moored. For the loading and unloading of these vessels huge cranes will be placed in position, and for the removal of the freight a line of rails will run along the quay leading to the wharves and to the railway station.

Zebra Bay has an area of about 170 acres, and offers a basin which is thoroughly protected from bad weather of all kinds. The remainder of the surface of Lake Biserta is at present taken up with fisheries, but through these a canal can be opened out.

According to approximate calculations the entire cost of the conversion of Biserta into a modern naval port of the first class will not exceed 10,000,000 francs. The French Government has already subsidised the company above named 5,000,000 francs, and has also made over to it the right of constructing all further works in the port and the fisheries in Lake Biserta.

The town of Biserta has at present a population of 8,000, of whom 500 are French. Between Marseilles and Biserta there has been established a direct service of steamers, which run three times a week. The

extraordinarily rapid increase of vessels bound for Biserta can be seen from the following table :—

ARRIVAL.					DEPARTURE.				
Year	No. of Vessels	Tonnage		Passengers	Year	No. of Vessels	Tonnage		Passengers
		Displacement	Freight				Displacement	Freight	
1890	341	71,092	5,498	426	1890	319	70,374	3,882	301
1891	455	90,435	8,761	1077	1891	455	85,896	5,468	665
1892	501	92,222	13,346	1572	1892	490	89,551	5,298	920

The spring of last year was to have seen the completion of the railway from Biserta to Djedeida, by which Biserta will be placed in direct railway communication with Tunis, and with the whole of the French railway system in Northern Africa.

The time cannot be distant, when Biserta will no doubt attain to great importance as a climatic resort. In winter the cold, because of the fresh northern breezes, is more perceptible and more severe perhaps than in other towns of the country, yet in the summer season the climate and even the mean temperature of Biserta are considerably more healthy than at any other spot on the northern coast of Africa.

Passing to the strategical importance of Biserta, we would draw attention to the attached Map marked IV., on which is noted, in nautical miles, the distance between this place and the principal ports along the western portion of the Mediterranean Sea. From this chart we can gather the position of Biserta in relation to the islands of Sicily and Sardinia. Thus, in nine hours after leaving Biserta, a fleet could appear before Cagliari or Trapani; in twelve hours before Palermo; in twenty hours before Catania, Naples, or Civita Vecchia; in thirty-seven hours before Brindisi. Biserta, therefore, appears, in view of its excellent natural harbour, destined by Nature as the most favourable base for a fleet operating against Southern Italy or Malta.

The French naval officers, MM. Z. and Montéchant in their works on naval strategy,* are already demanding the formation, in the Mediterranean, of three permanent squadrons, as follows:—(1) the Provençal Squadron, having the port of Toulon as a base of operations; (2) the Corsican Squadron, with Ajaccio and Porto Vecchio, as *points d'appui*; (3) the African or Eastern Squadron, with *points d'appui* at Biserta and Algiers.

If in the event of war, an expeditionary force were held in readiness at Biserta, it could be very rapidly transferred to any point in Southern Italy, and the Italian Fleet only could oppose its landing.

* *Vide* "Essai de Stratégie Navale," 1893.

In *Les Guerres Navales de demain*, the same French authors propose such an invasion and point to the possibility, in the event of a war between France and Italy, of, in addition to the bombarding of Italian coast towns by the French Fleet, throwing 40,000 Chasseurs d'Afrique from the African coast on the island of Sicily, and that such an operation would be calculated to evoke a panic throughout Italy, and would be the means of an end being put to all opposition in the shortest possible time.

Although even the successful invasion of an island will always be an operation of doubtful value, yet it is far different with the operations and bombardments, which can be carried out by a fleet, which has command of the sea, and under such circumstances the strategical importance of Biserta, from a purely military point of view, fully justifies the taking of corresponding measures by the Italian Parliament, amongst which the increase of the Italian Fleet and the conversion of Trapani and Cagliari into armed places of rendezvous for Italian war vessels naturally come first. For the Italian cruisers, to which in case of war would be assigned the responsible task of unceasingly watching the entire coast-line of the Apennine peninsula, the duty would be considerably facilitated, were a large number of fortified points to be constructed, and coaling stations established along the entire length of the Italian coast-line. There are already several of such stations on the west and south coasts of Italy, viz., Genoa, Spezzia, Leghorn, Maddalena, Civita Vecchia, Gaëta, Naples, the Straits of Messina, Palermo, Syracuse, and Tarentum. Further information on the maritime defence of Italy may be found in the excellent little study "*Centri Defensivi Marittimi e Tipi di Navi*," published in the June number of the *Rivista Marittima* of 1893.

It was natural that the European press should have devoted a large amount of attention to the Biserta question, and that this theme should have chiefly interested the press of the countries most concerned with Biserta, viz., France and Italy. The Italian press unanimously pointed out the danger to which Italy would always be exposed, if Biserta was made a fortified *place d'armes* and a base for a fleet, and insisted that, in the light of existing treaties, France should be called upon to abstain from her design, and refrain from creating a "New Carthage" which should once more threaten Rome.

In answer there appeared in the pages of the French journal *La Marine de France* a long article, entitled "*Bizerte, la France et l'Italie*," which had for its object the demonstration that Biserta had only been fortified in order to oppose the commanding influence of England in the Mediterranean Sea. It pointed out that England's possession of Gibraltar, Malta, Cyprus, and Egypt gave her a preponderating position in the Mediterranean, to which she had no rightful claim, and that she was, moreover, endeavouring to extend her influence by the acquisition of Tangiers and Syria. That the greatest danger for England in the Mediterranean lies in an alliance between France and Italy. Through such a coalition British power in that sea could be destroyed at one blow, and that, therefore, England was gravitating towards Italy for the sake of self-advantage.

The author arrives at the following conclusions :—

“1st. No Power has a right to object to France fortifying Biserta.”

“2nd. Even if it is fortified, it is doubtful if France is strong enough to use it as a base of operations against Sicily or Sardinia.”

“3rd. Biserta threatens nobody ; the works are of a defensive nature, and intended to protect the trade of Tunis with Tripoli, etc.”

The official paper, *Dépêche Tunisienne*, declares that Tunis has more to fear from an invasion on the side of Italy, and that for that reason Biserta must be fortified.

M. Leroy-Beaulieu wrote in the *La Marine de France* as follows :—

“Biserta must become a port of call in the Mediterranean Sea for the enormous number of merchant vessels which pass between the Atlantic Ocean, the East, and back again. It is going too far to hope that the commanding position at present occupied by Malta over the world's trade in this part of the ocean should be altogether shaken, or that *all* this trade should pass by way of Biserta, since English vessels will, of course, always prefer their own ports. But, on the other hand, Malta has extraordinarily few natural sources of wealth, whilst Biserta, with the fertile province of Tunis behind it has very large ones. For this reason, Biserta may, in the future, become as great a port of call for the world's steamers' traffic as Malta now is. Once let agriculture and industries be developed in Tunisian territory, and Biserta will be converted into the world's trading centre, without throwing the Tunis capital into the shade.”

Other French papers openly declare that the fortifying of Biserta is an indispensable measure of precaution in view of the impending future war for the mastery in the Mediterranean, which will take place in the neighbourhood of the port in question.

According to the Italian press, Biserta ought not to remain in French hands, as the material interests of Italy are undoubtedly seriously menaced. It is openly acknowledged in France that she will use every endeavour to divert to the Marseilles-Biserta route the twenty millions of the trade of Tripoli, which up till now has almost entirely passed through Italy ; and this may easily be effected in French opinion after they have completed a net-work of railways in Northern Africa.

English journals assert that France has constructed the ports of Biserta, Mers-el-Kebir, Algiers, Tunis, Ajaccio, and Toulon, in the western portion of the Mediterranean, with the object of having a chain of fortified points, and of maintaining in this sea not only a powerful war fleet, which, even now, is superior to the English, but also a number of swift cruisers and torpedo-vessels, which in the event of war could slip out of Toulon or Ajaccio, and easily interrupt the course of trade between Gibraltar and Malta by seizing merchant steamers before protection could be afforded them, and that then they could once more hide themselves in either Biserta or Algiers on the appearance of an English Fleet.

The opinion is frequently expressed in these days that it would be more advantageous for England to exchange the Rock of Gibraltar with Spain, for either Ceuta or the Island of Minorca, since the fortress is not

only not impregnable, but also unsuited for the construction of docks. Ceuta possesses a good harbour and commands the Straits of Gibraltar quite as well as Gibraltar itself, whilst Port Mahon, too, situated as it is in the centre of the thousand-mile run between Gibraltar and Malta, would offer, with its excellent harbour, an important *étape* and point of defence for English trading vessels on the lines which connect Toulon with Algiers and Biserta.

Not long ago there appeared in the *La Marine de France* the following note :—

" In these days the question has begun to be considered : What port must a Russian Squadron select for itself as a station in the Mediterranean Sea ? Some have named Villefranche, Ajaccio, or Algiers ; others have recommended one of the islands of the Grecian Archipelago.

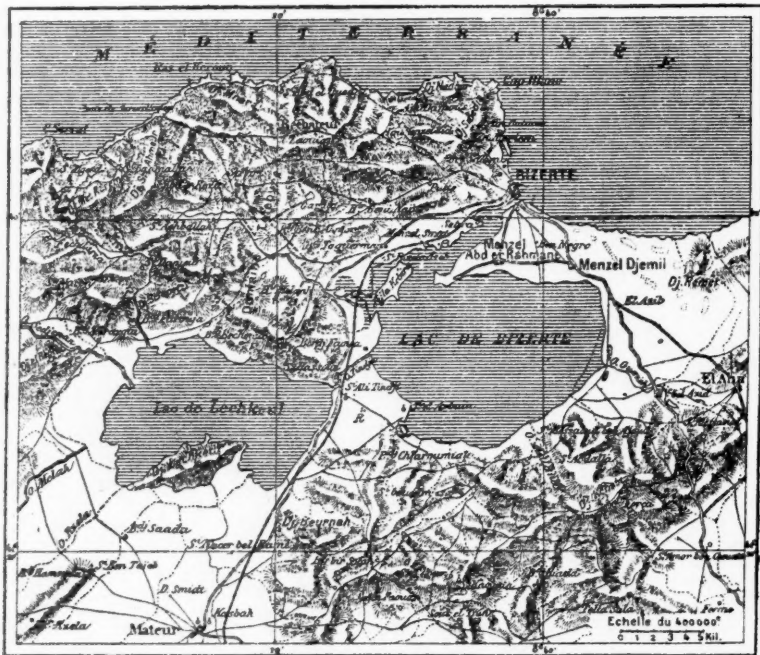
Now it seems to us that, under present circumstances, the Russian Admiralty will be guided in their choice of a naval station in these waters by strategical considerations alone. From this point of view it appears that in the whole of the Mediterranean Sea they will not find a port more suitable to them than Biserta.

At Biserta, which lies midway between the two principal coast-lines of the Mediterranean Sea, a Russian Squadron would always be ready, according to circumstances, to issue forth either to the aid of its Baltic Fleet, or to proceed to the Dardanelles, should occasion arise for the Russian Black Sea Fleet to attempt to force the Straits of the Bosphorus.

If the French Admiralty should succeed in gaining Russian vessels over for the accomplishment of its own strategical plan of operations, then it cannot offer them a better operating base than Biserta."

If a Russian and French Fleet were stationed at Biserta, there is no doubt that the interests of England in the Mediterranean would be seriously threatened, and whatever happens no one can doubt that, from the natural order of things, Biserta is destined before long to become a place of the first strategical importance.

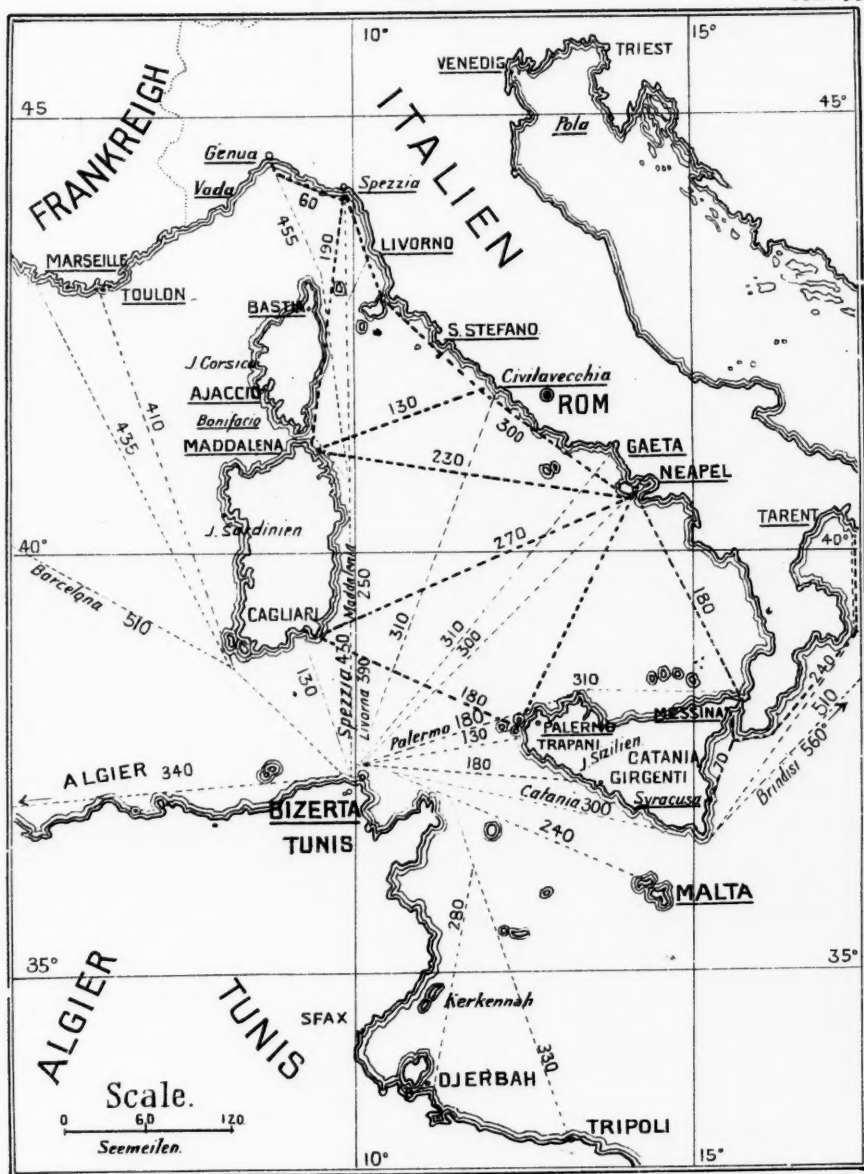
MAP 1.

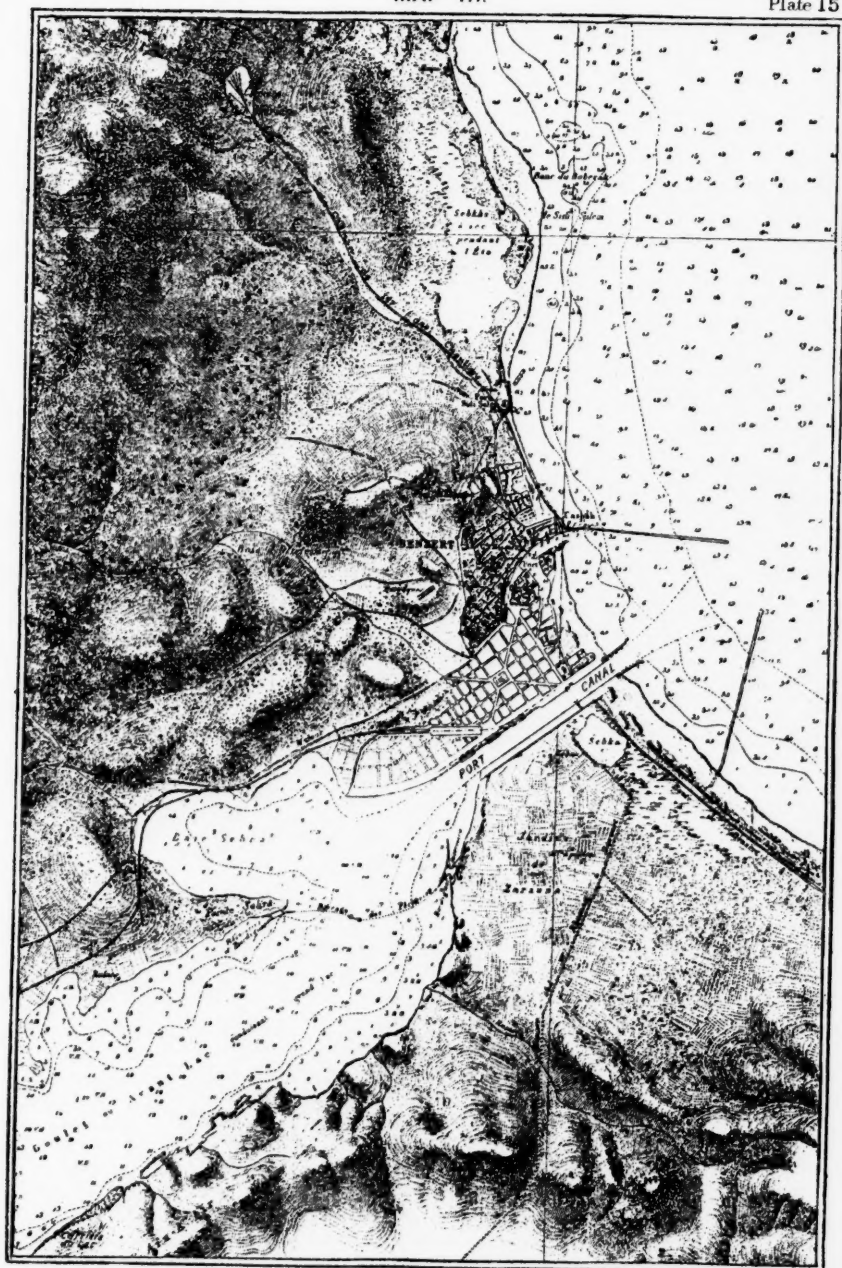


Biserta and surrounding country, shewing Lake Biserta and the freshwater Lake Iskeul or Lechkeul.

MAP IV.

Plate 14.





Biserta at the present time.

THE ARMY DURING THE REVOLUTION 1789-94.

*(A Review of M. E. d'HAUTERIVE'S Work.)**By Lieutenant-Colonel E. M. LLOYD, R.E.*

THE ARMY OF THE MONARCHY (1789-92).

STATE of the Army in 1789.—The cleavage of classes, so marked in France generally at the time of the Revolution, was especially sharp in the army between officers and men. The latter were tempted to enlist by a few crowns, the sight of a smart uniform, and the promise of a pleasant life; they were prompted by poverty, not by patriotism. They soon found themselves disappointed, and desertion was the natural consequence. The officers did not sufficiently realise that to win their men's hearts they must take care of their bodies; they were feared and obeyed, but they were not loved. The natural gaiety of Frenchmen had to struggle against the influence of crowded, unwholesome barracks, hospital neglect, shoddy clothing, and bad food. On every side contractors batten on them.

The soldier had usually plenty of time on his hands, though little money. He had not more than four hours' duty a day. He strolled the streets, hung about wine-shops, and fought duels like his betters. Laws against duelling were multiplied in vain: everyone combined to ignore them. In other respects discipline had become much stricter in the reign of Louis XVI.: partly from the prolonged peace, partly because captains had ceased to be the owners of their companies, and had not the old temptation to wink at misconduct, lest their men should desert and put them to the expense of new recruits. Prussian fashions were introduced; among them the punishment of strokes with the flat of the sabre, so alien to the French character. "Nothing but the edge of the sabre for me," was a saying that went round the army.

Though the soldiers were not concerned directly with the eighteenth-century philosophy, it had its effect upon them in sapping respect for religion and authority, and raising hopes of better times for themselves. This was especially the case with the lower officers (*bas-officiers*), who were as a rule excellent, but had practically no chance of promotion to officers. The commissioned ranks belonged to the *noblesse*, though a few men of the middle class gained access to them by money, and forced their way upward by merit.¹

¹ This was more difficult in the reign of Louis XVI. than in the preceding reigns. By the order of 22nd May, 1781, all candidates for sub-lieutenancies must give proof of four quarters of nobility. (Duruy, *L'armée royale en 1789*, p. 83.)

The higher nobility were captains or colonels from their cradle. Others bought commissions as sub-lieutenants. But most of the young officers came from the military schools founded by Louis XV. for the sons of men of quality with narrow means. Promotion went solely by the King's pleasure. It was obtained usually through a friend at Court, but sometimes through the report of an honest inspector, as the tardy reward of good service. But in the main, rank had little to do with service, past or future. It was a title to pension, a means of support for the nobility—often the only means. There were 36,000 officers, of whom only 13,000 were upon the active list, and the officers cost more than all the rest of the army.¹

Yet they had hard work to make ends meet, for life was expensive in the army. Play, dress, and the table drew heavily on the purse of an officer, and drove him to many shifts. But honour was a very different thing from common honesty, and all virtue was summed up in courage. They did not serve France, they served the King; and with the King's leave they were ready to transfer their service to a foreign power, and even to fight against their own country.

The States-General.—The soldiers had no votes, and the junior officers took little part in the elections of 1789. Among the deputies of the *Tiers État* only four were drawn from the army. Among the deputies of the nobility there were thirty-five generals and seventeen regimental officers. In the flood of pamphlets which poured at that time from the press, only a few dealt with the state of the army. But the memorials addressed to the States-General on this subject were numerous, and on several points they were nearly unanimous. They asked that there should be some security against the capricious changes made by successive ministers, and against their arbitrary action; that purchase should be abolished, and all ranks of the army be open to all classes of the people, according to merit; that the excessive number of generals and the sinecure appointments should be cut down; that the soldier should be better paid and better treated, and corporal punishment done away with; and that means should be found to reconcile military subordination with the rights of a free citizen. Some, foreseeing the troubles ahead, asked for guarantees that the troops should never be employed against the people.

The First Months of the Revolution (May—September, '89).—Want of food and the fermentation caused by the meeting of the States-General, led to wide-spread disturbances and brigandage in the country. The troops were called upon to help the constabulary, and they did their duty with moderation and discipline. But in the towns they were more in sympathy with the forces of disorder. The French Guards, demoralised by Paris life, and fretted by a harsh commanding officer, gave the first example of mutiny. Most of them lived on the earnings

¹ The total number of officers on the active list is shown as 9,378 by Grimoard. (*Tableau historique de la guerre de la Révolution de France*, Vol. I., p. 348.) There were 1,159 officers on the staff of the army. (Duruy, p. 95.)

of loose women, and these women drew them to join hands with the people. Other regiments followed their example; but some, especially the foreign regiments, were more to be relied on, and were, therefore, brought up and quartered round Paris.

On 12th July began the riots, ending on the 14th with the storming of the Bastille. This gave a shock to discipline all over France. It was the starting-point of the struggle between the men and their officers, and of fraternisations between the troops and the rioters in provincial towns. They continued, however, especially the cavalry, to do escort duty for the convoys of grain, and protect them from the peasantry. They would put down pillage, though they would not fire upon a mob asserting its rights. They had still, too, a sense of military honour. A dragoon, premature in his ferocity, tore out the heart of one of the victims of the mob, and carried it in triumph. His comrades voted his conduct infamous, and one after another challenged him till he was killed.

The Minister of War tried to counteract the influence of the people on the troops by shifting them frequently from one station to another. The officers recommended various concessions to them, and pointed out grievances, *e.g.*, that at some of the public gardens admission was refused to "loose women, dogs, soldiers, and beggars." But the men were not to be won now; and though they mostly obeyed from force of habit, they became more and more estranged from their officers.

By this time a new military force had come into existence. The National Guards were formed spontaneously, partly to guard the newly-acquired rights of the people and partly to protect property against the bands of plunderers. Paris had set the example the day before the storming of the Bastille. Other towns followed suit, and before long the total number of those who had inscribed their names was reckoned at more than two millions. The actual effectives fell far short of that number. It was a Volunteer force of townfolk of all ages, armed with such weapons as came to hand. Commandant, officers, and uniform (if any) were chosen by the men. There were 16,000 deserters from the army among the National Guards of Paris.

The Federations (October, '89—14th July, '90).—In deference to the wishes of the Assembly and the Parisians, the King sent away the foreign troops from Versailles. At the end of September the regiment of Flanders came into quarters there. Its arrival was viewed with suspicion by the "patriots," for it was said to be devoted to the King. A banquet was given to it, where loyal toasts were drunk, and the tricolour cockade was trampled under foot. Paris was furious, and the mob marched on Versailles. The girls of the Palais Royal won over the Flanders men, and the King was brought to Paris, lest he should join the army of Bouillé in the east of France. This was a further blow to the Royal prestige in the eyes of the army, though its effect was not immediate.

In the winter and spring there followed the general outburst of fraternity, which brought together peasants and townspeople in all parts of France to swear the unity of the country and the breaking down of all

local or other barriers. The soldiers were invited to share in this brotherhood, and to bind themselves to fight only against the enemies of their country. The great majority of them caught the infection. The bulk of the officers, on the contrary, watched the drift of affairs with unmixed distaste. They were irritated at the change in their own men; they despised the National Guards; they winced at having to take orders from ignorant municipalities. But loyalty to the King made most of them confine themselves to shrugs and epigrams. A few, indeed, thought only of their own safety, and left the country; these were the princes of the blood and the higher nobility.

Some officers tried hard to regain their hold of their men, and to remove them from popular seduction; and with a certain amount of success. But there were frequent outbreaks of mutiny and disorder, especially in the larger garrisons. Regiments rose against their officers, fought with one another, or broke loose and sold their arms and equipment. In one town they joined the rioters; in another they were themselves a terror to the peaceful inhabitants.

On 4th June, the Minister of War brought the state of things in the army to the notice of the Assembly, and begged it to take strong measures; but the Assembly listened and did nothing. It had already congratulated certain corps on joining in the Federation movement, and on 12th June it resolved that each regiment should send delegates to represent it in the great gathering of Federates which was to be held in Paris on the anniversary of the storming of the Bastille.

The Clubs (14th July, '90—20th June, '91).—"This Federation poisoned the troops; the soldiers brought back from the capital all the seeds of corruption, and scattered them throughout the army"; so said Bouillé, who commanded at Metz, and who was the man on whom the Court built most. The delegates had seen the strength that comes of combination; they had been welcomed and indoctrinated by the clubs. On their return, or in some cases before it, regimental committees were formed, which corresponded with the more extreme members of the Assembly, sent reports of their officers and organised the action of the men. Instigated from Paris, they put forward claims for pay which they declared the men had been defrauded of. In some cases the pay-chests were seized; in others the officers were made to pay up, as ransom for their lives.

The Assembly tried in vain to stop this movement. It found it necessary to send general officers as inspectors to inquire into the charges made, and these inquiries gave rise in some places to new outbreaks. That at Nancy, originating with a Swiss regiment (Châteaueux), was so serious that Bouillé marched from Metz with 4,500 men to suppress it. A considerable number of his troops were killed and wounded, and sixty-three men of Châteaueux were sentenced to death or the galleys. Bouillé had managed to maintain more discipline among his troops than was the case elsewhere, but he considered that he could rely only upon the foreign battalions of his infantry, and upon rather more than half his cavalry. The latter, recruited from the country population, mostly

quartered in villages and actively employed in escort duty or in preventing the exportation of corn over the frontier, was less contaminated than the foot.

In the early part of 1791 the control of the clubs over the army became more complete. The troops were the chief possible obstacle to the execution of the Jacobin plans, and no pains were spared to win them over and alienate them from their own officers. "The friends of the Constitution" kept vigilant watch on them in all parts of France, denounced officers, and memorialised the generals or the Minister of War to leave this regiment, or remove that, according as they found them more or less amenable to their influence. On 1st May the Assembly resolved that soldiers, when not on duty, might attend the meetings of these societies, but that the societies were not to interfere in regimental matters. The prohibition was of no effect, and the growing disorder, especially the agitation caused by the refusal of most of the clergy to take the civic oath, loosened the bonds of discipline still further.

The Emigration (20th June, '91—end of '91).—On 20th June began the King's flight to Varennes. On the 25th he re-entered Paris, passing through a silent crowd, to whom warning had been given:—"Anyone who cheers the King will be beaten; anyone who insults him will be hanged." This fiasco destroyed what remained of his prestige with the army. A sense of honour and duty to him had hitherto kept the officers at their posts, though they saw with disgust the change in their men and the influence of the clubs, and were themselves exposed to humiliations and danger. Now they felt free to follow the example which he had set, and could even serve him better by swelling the numbers of Frenchmen beyond the frontier who were ready to join foreign Powers in restoring the Royal authority.

Many of them went, partly moved thereto by the imposition of a new oath to the Constitution, in which no mention was made of the King. Bouillé and a large number of his officers were hopelessly compromised by the failure of the King's attempt, which they had pledged themselves to help. But, besides those who emigrated of their own accord, either out of fear for themselves or loyalty to their Sovereign, there were others who were driven away by their troops. Suspicion was everywhere, and was easily directed upon anyone whose strictness made him unpopular, or who had provoked some private grudge.

To fill up the numerous vacancies the Assembly resolved, on the 1st August, that sub-lieutenants should be obtained, half of them from the under-officers¹ of the regiment, and half from civilians 16 to 24 years of age, sons of men who had full rights of citizenship, and known to be attached to the Constitution. Three-fourths were to be taken from the latter source, when the regiment had itself made the vacancies by driving officers away. These rules furnished a new motive for insubordination,

¹ *Bas-officiers* had been re-named *Sous-officiers*. La Fayette and others attributed the Republican successes largely to the admission of these men to the higher ranks. Hoche and Soult were among them. By the beginning of 1792 more than 2,000 officers had resigned.

which was by no means counterbalanced by the threat of punishment which accompanied them. Greed now came in to reinforce spite and mistrust. Where the men themselves took no part against their officers, they were not sorry to leave them to the fury of the mob directed by the clubs.

Disorder and insubordination had reached a pitch which could be cured only by war; and war had become inevitable. On 14th December three armies were formed, that of the North under Rochambeau, that of the Centre under La Fayette, and that of the Rhine under Lückner, to guard the frontier threatened by the emigrants and the allies.

THE ARMIES OF THE REVOLUTION (1792-94).

The Earlier Volunteers (end of '91—11th August, '92).—There were gaps in the ranks of the army as well as among the officers, and they were less easy to fill. Recruits were few, deserters many, and the army was more than 50,000 men under strength. The imminence of war made some means of supplementing it imperative. The National Guards, formed only for local use, were quite unsuitable for this purpose.¹ In the beginning of 1791, it had been decided to raise 100,000 auxiliaries by voluntary engagement, to reinforce the regiments of the line as required; but nothing came of this.

In June, 1791, a law was passed that one in every twenty men of the National Guard should be held available for service with the army; and in July and August the Assembly, acting upon this law, summoned at first 26,000, and ultimately 101,000 men, not to join the regiments of the line, but to form separate battalions of Volunteers. The call was met much more readily in the North-east than in the parts of France more remote from invasion. By 25th September sixty battalions were nearly made up; but the remaining 109 battalions of this levy were formed very slowly.

At first they were left in their own towns; but some of the men dropped off, others were insubordinate, others demanded that they should be sent to the threatened frontier, and it was thought best to gratify them. Intoxicated by the language of the clubs and journals, they behaved, when they arrived there, as if they were in a conquered country, pillaging at pleasure, and disregarding all authority. To make matters worse, the Assembly decided, in the absence of the Minister of War, that the men should elect their own officers, with the sole proviso that they must not be officers of the line. This led to the choice of schemers, talkers, and drinkers, who neither knew the value of discipline, nor had courage to enforce it.² Narbonne, the Minister of War, appealed to the

¹ The provincial militia (the old reserve of the army) had fallen into neglect and disfavour, and was abolished in March, 1791. Men were drawn for it by lot, but there were many exemptions, and it practically fell on the peasantry.

² While there is abundant evidence to bear this out, it must not be forgotten that among those elected were Davout, Jourdan, Lecourbe, Marceau, Masséna, Oudinot, Pichegru, and Victor, all of whom had served in the regular army; while among those who had had little or no previous military training were Lannes, Moreau, St. Cyr, and Suchet. One result, indeed, of the system was that it led men to desert from the line in order to obtain commissions in the Volunteers.

Assembly in vain to alter this, nor could he persuade them to allow the regular army to be recruited from the Volunteers.

The emigration of officers increased in the early months of 1792, and they now tried to persuade their men to go with them. Of the Twelfth Cavalry, fourteen officers and 150 men set out for the frontier, but three-fourths of the men changed their minds and turned back. Much the same happened with other regiments, but the Royal-Allemand went over in a body.

On 20th April, in reply to the Austrian summons to restore the King's prerogatives, France declared war against Austria. Dumouriez, then Minister of Foreign Affairs, hoped that by a prompt offensive the Austrian troops would be driven out of the Netherlands; but the disgraceful panics which seized the troops of Biron and Dillon as they were advancing on Mons and Tournay respectively, frustrated his scheme. These panics originated, not with the Volunteers, but with Regulars—the Fifth and Sixth Dragoons. Dillon was killed by his own men, and Rochambeau resigned in disgust. Lückner succeeded him in command of the army of the North. It was the worst of the three armies, and he complained to Servan, the Minister of War, of the state in which he found it. In reply, Servan remarked that the correspondence of the French generals fifty years before contained many complaints of the want of discipline of the troops, and the neglect of the officers; yet, nevertheless, they won the victories of Fontenoy, Rocoux, and Laffeldt. At the same time, he admitted that the efforts of agitators, and the wholesale change of officers, made the general's task a hard one.

Other things contributed. The supply of stores and necessities of all sorts was lamentably deficient; the whole administration was disorganised; and the depreciation of *assignats* made the troops unable to buy things for themselves. Marauding was, in fact, forced upon them. The local clubs formed committees to watch the military operations, to advise the generals about their duties, or to report their incompetence to the Minister of War, and suggest substitutes for them.

The war stood still, but while the Austrian and Prussian Armies were mustering on the Rhine events moved fast in Paris. In anticipation of the national *fête* on 14th July, which would bring a fresh flow of Federates to the capital, the Girondist Ministry proposed that a camp for 20,000 of them should be formed near Paris. This proposal was vetoed by the King, together with the law passed by the Assembly for the expulsion of refractory priests; and on 13th June he dismissed the Ministers who had brought them forward. Dumouriez resigned three days afterwards and joined the army of the North. On 20th June the mob invaded the Tuileries, demanding the withdrawal of the veto. On 11th July the Assembly met the advance of Brunswick by declaring the country in danger, and summoning the Volunteers who had not yet joined;¹ and in

¹ The strength of the regular army was estimated at 178,000 men at the end of June, but nearly half of them were required for garrisons. The Volunteers were reckoned at 84,000. (Roussett, p. 66.)

the beginning of August, in reply to Brunswick's proclamation, the question of deposition was raised.

The Downfall of Royalty (10th August, '92—21st January, '93).—On 10th August the Tuileries were again invaded, the guards were massacred, and the Royal family took refuge with the Assembly, which was forced to suspend the King, and to summon a Convention to decide on the future form of government. It sent off commissioners to the different armies to reconcile them to the steps taken, and to remove such officers as would not accept them.¹

La Fayette made a last effort to arrest the Revolution and save the Monarchy, but his troops would not follow him. On 19th August he crossed the frontier with a few officers of his staff, and Dumouriez took his place. Lückner was practically superseded at the same time, under guise of promotion to generalissimo. The army at large accepted the constitutional change with indifference, if not with pleasure. It was more concerned about the war. But many officers who had hitherto held on now left, and many others were denounced and driven away. The Minister of War thanked the denouncers for such marks of civism.

Meanwhile the allies had entered France, and by the beginning of September had taken Longwy and Verdun. The panic caused in Paris gave opportunity for the September massacres. When these were over, the butchers were sent to join Dumouriez's army; but the troops received them ill, and even killed one man who boasted that he had mutilated the body of the Princesse de Lamballe. These ruffians were among the Federates who, having gathered at Paris for the *fête*, had been sent afterwards to a camp at Soissons, to be drilled and formed into battalions, and had been passed on in a few weeks to the armies in the field. There was a large element of Parisians among them, and they were far worse than the ordinary Volunteers, who had at all events some local bond in their battalions. The new levies of Volunteers, too, were inferior to those of 1791, which had contained a larger proportion of genuine patriots. Many of those now furnished were hired substitutes. They knew nothing of drill or discipline, pillaged incessantly, and cried out that they were betrayed at the first sight of the enemy.² Some generals had tried to curry favour by praising the Volunteers. Montesquiou, who commanded the South-east frontier, had even declared that they were better than the troops of the line; but he retracted when he was taken at his word, and his regulars were ordered elsewhere.

¹ Among the officers suspended on this account was Rouget de l'Isle, the author of the *Marseillaise*. He was a lieutenant of Engineers serving at Huningue. About the same time Servan was sending the *Marseillaise* to Kellermann to be chanted instead of the *Te Deum*, in celebration of Valmy.

² Biron, commanding the army of the Rhine, complained to the Minister of War that nine-tenths of them came to him absolutely destitute, and that he had the utmost difficulty in finding clothes and arms for them. Servan, in reply, could only suggest that they should be armed with pikes and fowling-pieces, and supplied with buckshot cartridges.

In the previous year the Assembly had decided that any Volunteer should be free to go home at the end of a campaign (arbitrarily fixed at 1st December) if he had given two months' previous notice. In the beginning of October, '92, a large number of the earlier Volunteers, who had now become of some value as soldiers, gave notice accordingly. Many of them went off at once; and by December some battalions disappeared entirely, though the campaign was in full career.

It was to these earlier Volunteers, and to the troops of the line, that the repulse of the enemy at Valmy (20th September) and his defeat at Jemmapes (6th November) were due.¹ If there were disorder and destitution in the armies, there were also courage and enthusiasm. In January, '93, Custine wrote from Mayence:—"I have not been able to provide shoes for all my soldiers; many are barefoot; yet they show a cheeriness which delights me, and which I cannot understand."

Custine was one of the aristocratic officers whom ambition had kept in the army, and who sounded their own trumpet and denounced one another, in hopes of rising to the highest commands. The example they set was widely followed. Every man in authority knew that others were trying to trip him up; and this, with the fear of provoking desertions, made most men aim at popularity and let discipline go. The action of the Convention and its commissioners helped to relax it. Military prisoners were amnestied, and "patriotic" literature circulated among the men.

Disorganisation (January—October, '93).—At the beginning of 1793, the Revolution seemed to be everywhere triumphant. It had been successful in Belgium, on the Rhine, and in Savoy, and had crushed opposition at home. Only a few voices were raised in the army against the execution of the King. But in a few months the situation was changed. Civil war had broken out in the West and was threatening in the South; England and Holland had been added to the enemies of France; and the French troops had been beaten at Neer-Winden and driven out of Belgium. Dumouriez was already on bad terms with the Jacobins before his defeat, and knowing they or he must fall, he leagued with the Austrians to put them down. His troops would not listen to him, the Volunteers fired on him, and he had to take refuge with Coburg; but he left his army disorganised and dejected.

To meet the emergency, the Convention created the Committee of Public Safety, to watch and control the executive in Paris, and sent "representatives of the people" to the armies to play the same part with the generals. If these representatives often meddled with questions which they did not understand, they carried a weight which was usefully directed against abuses. For instance, they denounced the swarms of loose women who were quartered in the barracks and camps, and were as numerous as the troops themselves. "They enervate the troops," wrote Carnot, "and cause ten times as much loss as the enemy's

¹ At Jemmapes Dumouriez had about 40,000 men, the Austrians 13,000. Two-thirds of his infantry were Volunteers.

fire by the diseases they bring." But the orders against them were largely evaded by their dressing as men.

The Minister of War, Bouchotte, had also his emissaries with the armies, and their action was wholly mischievous. They, like himself, were creatures of Hébert's; they were drawn from the lowest classes, and their business was to denounce officers and detach their men from them. Custine was especially chosen for their attacks, because he was an aristocrat who had been successful, and in whom his men believed; also, no doubt, because he treated Bouchotte with undisguised contempt. The filthy libels of *Père Duchesne* and other prints were freely distributed by them throughout the ranks, and partly paid for out of the funds of the War Department. Generals were displaced one after another, and many men shirked so dangerous an elevation, which (as Kléber said) was "an order for the scaffold." Men rose with unheard-of rapidity; some, like Hoche, Pichegru, and Moreau, from real merit; others, like Santerre, Rossignol, and Ronsin, by party intrigue.

Nevertheless, there was at this time little insubordination among the regular troops. Two things, *esprit de corps* and the presence of the enemy, made the men obey chiefs of proved capacity, in spite of lampoons and emissaries. The leaders of the Mountain continued, therefore, to distrust them. Amalgamation between the Regulars and the Volunteers had long been proposed. The Jacobins wished for it in the sense of complete fusion in order to destroy the old regiments; men of military experience wished for it in the sense of linked battalions, in order to improve the Volunteers. On 11th June it was adopted by the Convention in the latter form, though it was not generally carried out till the beginning of the following year.

The successes of the allies on the northern frontier, and of the insurgents in La Vendée, caused other measures besides this. The *levée en masse* was ordered on 14—16th August, but it was abortive. On 23rd August, the Convention decreed a compulsory conscription. Henceforward, all Frenchmen were under an obligation to serve in such ways as they could, and all the young unmarried men were liable to be called to the colours. This gave an ample supply of men, but much else was needed. Generals and representatives agreed that the disasters were mainly owing to the incompetence of the War Ministry, and the anarchic spirit which prevailed in it. A strong Government was demanded. The Hébertists fell in September; while Robespierre, hitherto their ally, became for the next ten months the master of France.

The Terror (October, '93—July, '94).—The tide now turned. While heads were falling fast in Paris, Houchard defeated the allies at Hondschooten (8th September) and Jourdan defeated them at Wattignies (16th October). Both these victories were mainly due to Carnot, who had joined the Committee of Public Safety in August. The representatives, instead of reporting to the Convention, now corresponded direct with that committee, which took into its hands the conduct of the war. The representatives, of whom there were now four with each army, had unlimited powers, which they often abused, but which many of them used

for the benefit of the army, to check pillage, malversation, cowardice, and disorder. "Generals, officers, and officials of all sorts are directed to satisfy the real grievances of the soldiers within three days. After that time we shall investigate them ourselves, and shall give examples of justice and severity such as the army has not yet seen." Such was the warning of the austere St. Just on joining the army of the Rhine, and he kept his word. He found 10,000 men were without shoes. He made the municipality of Strasburg provide them by ten o'clock next morning.

The representatives employed themselves less usefully in hunting out aristocrats among the officers, and forcing generals to fight actions against their better judgment. Everyone had not the courage of the general who replied to the threats of a representative:—"A man like me, who is every day in presence of the enemy, is not afraid of death, and I laugh at your guillotine." Military tribunals were set up after the pattern of the Revolutionary Tribunal, but they did not deal swift enough justice to satisfy such men as St. Just.

Meanwhile, the vigour, of which these things were symptoms, was winning success for the Republicans in La Vendée and on the Rhine, as well as in Belgium. The insurrection of Lyons was crushed and Toulon was recovered. The old faults remained among the troops—pillage, desertion, and insubordination—but there was a tighter rein upon them, and the soldiers had become hardened by much fighting. The material furnished by the conscription of August, vast in quantity, was worse in quality than the levies of the two preceding years, for the men were taken against their will. They were at first formed into separate battalions, and elected their own officers, like the Volunteers; but they were so worthless in this form that the Convention decided in November to incorporate them with the older battalions, by that time much reduced in strength.

On 8th January, 1794, the Convention gave orders that the amalgamation between the Regulars and Volunteers, decided on in June, should be generally carried out. Demi-brigades were formed, consisting of one battalion of the line and (as a rule) two battalions of Volunteers or Conscripts. The election of officers by their men in the Volunteer battalions was abolished. Regulars and Volunteers were henceforward to wear the same uniform, bear the same number, and serve under the same regulations. The army of the Monarchy was thus transformed at the end of five years into the army of the Revolution.



NAVAL AND MILITARY NOTES.

NAVAL.

HOME.—The following are the principal appointments which have been made: Vice-Admiral—A. Buller to be Commander-in-Chief in China. Captains—W. H. Hall to Pembroke Dockyard; E. Chichester to "Scylla"; T. Macgill to "Phoebe"; R. N. Custance to "Barfleur"; W. C. Forsyth to "Rainbow." Commander—W. B. Fisher to "Cossack."

The new second class cruisers "Fox" and "Forte" have been passed into the A Division of the Fleet Reserve, at Portsmouth and Chatham respectively.

The new first class battle-ship "Barfleur" proceeds to the Mediterranean, relieving the "Sanspareil," which ship, it is stated, on her return to England, will take the place of the second class battle-ship "Thunderer," as port guard-ship, at Sheerness; the new second class cruiser "Rainbow" will relieve the "Severn" in China, which returns home, after having served two commissions on that station; the new second class cruiser "Scylla" is commissioned to take out relief crews for the third class cruiser "Cossack" in the East Indies, which will pay off and re-commission at Aden, and for the first class gunboat "Pigeon" in China.

The "Contest," one of the three torpedo-boat destroyers ordered from Messrs. Laird, of Birkenhead, has completed her trials on the Clyde, and maintained a mean speed of 27.4 knots during the three hours' run; while the "Banshee," also by the same builders, attained a speed of 27.9 knots, and maintained a mean speed of 27.6 for the three hours, or half-a-knot in excess of the contract.

The Admiralty have decided to make an addition to our existing naval ordnance of some new quick-firing guns of small calibre, each being of a distinct type. The new guns will be known as the 4-inch 25-pounder, 12-pounder 12 cwt., and 12-pounder 8 cwt. guns. The most valuable of the three will probably be the 4-inch. It will be about 13¾ feet in length, 26 cwt. in weight, and with a charge of 3 lb. 12 ozs. of cordite will fire a 25-lb. projectile. The first vessels to be armed with these guns are the "Phoenix" and "Algerine," building at Devonport, and it is probable that when the experiments with the weapon are complete their distribution will extend to the larger types of cruisers and battle-ships, where they will replace the 6-pounders. For protecting the gun's crew from the enemy's gun fire, an inner and an outer shield are so fitted as to work with the gun. The inner shield is attached to the front of the gun cradle, and is curved to clear the outer shield in the various positions of elevation of the gun. It entirely covers the port in the outer shield at the maximum elevation and depression. The outer shield is built up of steel plates, wing plates extending to the rear. The shield is attached by plates to the front of the pivot. In this position it balances the other moving parts of the mounting, and the whole turns freely about the pivot.

The 12-pounder 12-cwt. gun is 10 feet 3 inches in length, and with a cordite charge of 1 lb. 10 ozs. will fire a 12½-lb. projectile. Its great advantage is that although firing a projectile twice the weight of that fired by the 6-pounder, there is only a difference of about 4 inches in the length of the two guns. About 500 of these guns are in course of construction, and they will be supplied to all the new battle-ships, first and second class cruisers, and to torpedo-boat destroyers. The battle-ships "Caesar," "Hannibal," "Illustrious," "Jupiter," "Magnificent," "Majestic," "Mars," "Prince George," and "Victorious," and the cruisers "Powerful" and "Terrible" will each carry sixteen of these guns, to be evenly distributed between the upper and main deck armaments. The 12-pounder 8-cwt.

gun will be about 7 feet in length, and with a cordite charge of $13\frac{1}{2}$ ozs. will discharge the same size projectile as the 12-pounder 12-cwt. gun. The gun being short, is specially adapted for boat and field service, and will be provided for all boats of 42 feet in length. In the ships already in commission and completed at the home ports, the 12-pounder will replace the 6-pounder quick-firing boat gun, and the work of strengthening the existing boats' fittings, in order that they may be prepared for the reception of the heavier ordnance, is to be carried out at the earliest opportunity. A large number of the new guns are in course of manufacture, and it is expected that they will be ready for issue by July next. Independently of its quick-firing properties, the 12-pounder will be by far the most powerful gun ever provided for a boat's armament.

A series of experiments with the new 12-inch gun and mounting have been carried out on the "Excellent" (formerly the "Handy"), experimental gun-boat, at Portsmouth, under the direction of Captain A. L. Douglas and the officers of the gunnery staff. The trials have been of more than usual interest, as this is the first time a gun of this character has been tried in the navy, while the mounting, which is also a new design, was built in the Dockyard. Originally the gun was intended to be 40 tons in weight, but it actually weighs 47 tons. It has many points of superiority over the 67-ton guns carried in the "Royal Sovereign" and "Admiral" classes of battle-ships. It is 5 feet longer, has greater penetration, is more easily handled, while, having an automatic breech-opener, a more rapid fire can be achieved. The mounting, too, is by many tons lighter than that carried in the older ships, and, therefore, the main object of the trials has been to ascertain how far it could stand the strain. The gun and mounting will be adopted in all the ships of the "Majestic" class, and form the principal armament.

After the first trial it was reported that the spring action at the breech was so weak, that at each recoil the breech had to be opened by hand. Six rounds were fired, and the mounting stood the strain admirably. The gun is loaded in the run-out position which it takes up after firing, due to the action of powerful springs which are compressed during recoil, and as the gun runs out after recoil the breech is automatically opened, being again instantly closed after loading by moving a lever. The loading arrangements are also novel, and designed with a view to saving time, for, while in the "Royal Sovereign" it takes about two-and-a-half minutes to fire a round, in the new gun a minute-and-a-half is sufficient. Made of steel and wire, the gun weighs about 47 tons, and, with the mounting, will be protected by a powerful shield mounted on the turn-table, as in the "Centurion." Cordite ammunition is to be used, the weight of the charge being about 150 lbs. The probable "life" of the gun has not yet been ascertained, but it is so constructed as to survive by many rounds the 13.5-inch weapon.

As a result of a series of experiments carried out by the Ordnance Committee in the "Nettle," target-ship, at Portsmouth, the Admiralty have decided to introduce into the navy a new type of common shell for use with all breech-loading guns from the 16 $\frac{1}{2}$ -inch 110-ton gun down to the 6-inch 5-ton gun, and also for the 6-inch quick-firing gun. The new projectile will be made of cast-steel, and will have a pointed head. Hitherto the bursting charge of the common shell used for all the larger types of breech-loading and quick-firing guns has received its detonation by means of a fuse fitted into the head of the projectile. This arrangement, of course, seriously interfered with the penetrative power of the shell, and it is principally for the purpose of giving greater facilities for penetration that the pointed heads are to be adopted. The base of the projectile, which has hitherto been used exclusively for filling with the bursting charge, will now also be arranged for the reception of a fuse. The projectile for the 16.25-inch gun will, when empty, weigh over 1,600 lbs., and will be made to receive a bursting charge of about 200 lbs. of gunpowder. The new projectiles will be supplied to all ships larger than the "Pearl" class, and, although it is unlikely that they will be ready for issue for some time, special arrangements for their

stowage and manipulation are to be made on board each vessel at home and abroad at the earliest opportunity.

A trial of a Harveyized steel armour-plate manufactured by Messrs. John Brown and Co. (Limited), of Sheffield, took place lately on board the "Nettle" at Portsmouth. The plate was selected by the Admiralty authorities from a batch of plates forming one of the barbettes of the "Magnificent," now building at Chatham, and had been reduced to the following dimensions:—8 feet in length, 6 feet in width, and 6 inches in thickness. Four 6-inch Holtzer projectiles were fired against the plate with the velocities of 1,507, 1,815, 1,960, 1,815 foot-seconds respectively. All the projectiles were completely broken up, the fragments of the third shot alone succeeding in just perforating the plate. The penetration in the other case was estimated at from 2 to 4 inches. The trial, which was carried out by Captain Douglas, R.N., of the "Excellent," in the presence of Sir W. H. White and others, was considered very satisfactory.

For some time past the Admiralty have been carrying out experiments with the view of converting the 6-inch, 5-inch, and 4-inch B.L. guns into quick-firers, and a very successful trial was made at Portsmouth at the end of last month with one of the newly-converted guns; the results were so satisfactory that the work of conversion is now to be pushed on with all speed, and some of the guns will soon be ready for issue.

A Parliamentary paper was issued on the 7th ult., containing the report on the naval manœuvres of last year.

The following extracts may be of interest:—

"The Partial Mobilisation began on the morning of the 18th July. The numbers of craft of various classes which hoisted the pendant on that day in the several commands were as follows:—

Command.	Battle-ships.	Cruisers.	Small craft.	Torpedo boats.	Total.
The Nore (Chatham and Sheerness)	1	11	9	7	28
Portsmouth	—	7	1	11	19
Devonport	—	5	1	5	11
Totals	1	23	11	23	58

"As on former occasions, the other commands had to supply the ratings of which the Nore Command was deficient. In all, 1,395 men were sent from Portsmouth and Devonport to Chatham. The Portsmouth men were sent by land, and the Devonport men by sea. At the Partial Mobilisation of 1893, the number of men which it had been necessary to transfer to Chatham was 1,345. So that—as the number of ships commissioned at Chatham in 1894 was greater than that commissioned there in 1893—the resources of the port in *personnel* had increased in the interval.

"In addition to the ships which were put in commission, the crews of the following—mostly port guard-ships and coast guard-ships—were completed to full numbers:—

Battle-ships	6
Coast defence-ship	1
Cruisers	6
Small craft	4

"The 'Bonaventure' selected as flag-ship for the East Indies, had hoisted the pendant on the 5th July. The above-mentioned ships, etc., together with the

Channel Squadron, composed the fleets subsequently engaged in manœuvres. The annexed table (p. 293) gives the statistics of Manœuvre Fleets for the past five years.

"The complements of the ships put in commission on the 18th July amounted to 9,009; the numbers required to complete the port guard-ships, coast guard-ships, etc., amounted to 2,645; so that the aggregate numbers required by the Partial Mobilisation of 1894 was 11,654. The complements of harbour ships, which would be sent to sea-going ships in the case of full mobilisation, were not drawn upon, and after the fleets had put to sea there remained, besides these harbour complements, 733 seamen-ratings and 548 engine-room ratings at Portsmouth and Devonport. In addition to the 'non-embarking section of the Coastguard'—the half which ordinarily remains on shore during annual cruises—282 men of the 'embarking section' were not called up. The number of marines left in barracks was 5,400. Following the precedent of 1891, permission was given to men of the first class and second class Naval Reserve to ship for twenty-eight days' exercise in the Manœuvre Fleets up to the number of 500. Before the volunteering was stopped, 535 had availed themselves of the permission. These R.N.R. men were ordered to be borne as supernumeraries. As there was in the ports a considerable number of boys in excess of the regulated proportion assigned to the ships of the Manœuvre Fleets, it was decided to send to sea as many of them as could be accommodated. To ensure sufficient accommodation for them and the Reserve men, the ships were directed not to embark the number of seamen-ratings noted against each class:—

	Seamen-ratings not embarked.	R.N.R. men embarked.
Battle-ships	10	22
First class cruisers ...	10	22
Second class cruisers ...	5	

TABLE SHOWING NUMBER OF SHIPS AND MEN TAKING PART IN MANŒUVRES, 1890-1894.

Class of Ship.	1890.		1891.		1892.		1893.		1894.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
First Class ..	4	41,800	6	52,270	6	65,550	4	45,650	6	77,700
Battle-ships ..	3	29,770	3	27,070	4	37,300	3	27,990	5	49,460
Second " ..	6	37,070	7	43,710	7	45,060	4	25,050	1	6,200
Third " ..	7	28,030	2	8,880	6	24,470	1	5,400	1	5,400
Coast-defence ships ..	26	117,370	23	78,565	26	99,405	33	130,875	33	145,825
Cruisers ..	10	13,380	14	16,305	17	18,235	20	20,770	26	18,638
Small and special service vessels ..	24	2,222	20	1,752	27	2,361	24	2,222	24	2,149
Torpedo-boats ..	80	269,642	75	229,452	93	203,381	89	257,957	96	305,362
Totals ..	18,860	16,998*	20,370	18,725	20,853†					
Total officers and men employed ..										

The 'Dreadnought' and 'Pallas,' not included in the above, were assigned to special services.

† 535 R.N.R. men not included.

* 469 R.N.R. men not included.

"One of the objects of permitting the above-mentioned number of R.N.R. men to join the ships, of which the aggregate complements already amounted to 20,853, was to test in some measure the working of machinery which must be set in motion whenever mobilisation has to be carried out. In partial mobilisation—the ordinary peace exercise—the reserve *personnel* is not ordered to embark, the ship's companies being composed of active service ratings. In full or complete mobilisation the Reserves of all classes and kinds would be drawn upon, and each ship, instead of being fully manned by active service ratings, would bear only a proportion of these, and would have the ship's company filled up from the Reserves, an arrangement which would permit a much larger number of ships to be manned than is allowed for in the partial mobilisation exercises."

The report concludes as follows:—

"No ship was put out of action by a torpedo-boat. The lightness of the nights seems to have had a two-fold effect. No. 80 (Red side) in evading a 'catcher' at first missed the Blue Fleet, but managed to keep up with it, and got within range of the rear ship, which was not attacked because she was supposed to belong to Group 3, a class exempted from torpedo attack by the Rules. The light apparently was not sufficient to permit the real character of the ship to be ascertained. On the other hand, it is reported that the nights were never really dark enough to afford concealment to the torpedo-boats. The Torpedo-Lieutenant in command of No. 80 makes the interesting observation that, owing to the speed of the 'hostile' fleet, the boats were unable to regain their position for attack when once it had been lost. From this it seems permissible to infer that high speed will be of itself no unimportant protection to ships traversing at night narrow waters infested by torpedo-boats. The torpedo-boat operations were upon a too restricted scale to supply much valuable instruction; but, as far as they went, they tend to confirm the view that the most effective employment of the torpedo-boat in war will be limited to sending her to attack an enemy's ship in a known position within the boat's range of action, and that the whereabouts of the enemy must be first ascertained and be communicated to the commander of the boat. The necessity of combining with torpedo-boats vessels of other and larger classes to scout and discover the enemy—where exact information as to his position cannot be obtained by other means—seems to be established, and, if so, it carries with it the obligation to consider a mere flotilla of torpedo-boats by themselves as a belligerent factor of distinctly imperfect efficiency.

The manoeuvre operations were brought to a close by Admiralty order at 6 p.m. on the 7th August."

GENERAL.

The war-ships, exclusive of torpedo-boats, launched during the year 1894 for the various navies, with their tonnage, indicated horse-power, and estimated speed, were as follows:—

Great Britain.—First class battle-ship: "Magnificent," 14,900 tons, 12,000-I.H.P., 17½ knots. Second class cruiser, "Eclipse," 5,600 tons, 9,600-I.H.P., 20 knots. Torpedo-gunboats, "Harrier," "Halcyon," "Hazard," "Hussar," all of 1,070 tons, 3,500-I.H.P., and 19 knots. Torpedo-boat destroyers, "Ardent," "Banshee," "Charger," "Decoy," "Hasty," "Lynx," "Rocket," "Sturgeon," "Surly," 250 tons, 4,000-I.H.P., 27 to 28 knots. Sloops, "Torch," "Aleric," 960 tons, 1,400-I.H.P., 13½ knots.

Denmark.—Third class cruiser "Heimdal," 1,280 tons, 3,000-I.H.P., 17 knots.

France.—First class battle-ship "Carnot," 12,008 tons, 15,000-I.H.P., 18 knots. First class armoured cruisers: "Bruix," "Chanzy," both 4,700 tons, 8,300-I.H.P., 19 knots. Second class cruiser "Descartes," 3,980 tons, 9,000-I.H.P., 20 knots. Third class cruiser "Linois," 2,275 tons, 6,600-I.H.P., 20 knots. Torpedo-avisos "Cassini," 945 tons, 5,000-I.H.P., 21½ knots.

Germany.—Fourth class coast-defence battle-ship "Odin," 3,600 tons, 5,000-I.H.P., 16 knots. Fourth class cruiser "Geier," 1,640 tons, 2,800-I.H.P., 16 knots.

Italy.—Ram-torpedo-cruiser "Calabria," 2,500 tons, 6,500-I.H.P., 19 knots. Torpedo-avisos "Caprera," 856 tons, 4,800-I.H.P., 21 knots. Gun-boat "Governo," 1,056 tons, 1,110-I.H.P., 11 knots.

Japan.—Torpedo-cruiser "Tatsuta," 875 tons, 5,500-I.H.P., 21 knots.

Russia.—First class battle-ships "Poltava," "Petropavlosk," both 10,960 tons, 10,600-I.H.P., 17 knots. Second class battle-ship "Sissoi Veliky," 8,880 tons, 8,500-I.H.P., 16 knots. Coast-defence battle-ship "Admiral Senjavin," 4,126 tons, 5,000-I.H.P., 17 knots.

The Netherlands.—Coast-defence battle-ships "Evertsen," "Piet Hein," both 3,400 tons, 4,500-I.H.P., 16 knots.

Turkey.—Third class cruisers "Sedd-ül-Bahr," "Zohaff," 800 tons, 600-I.H.P., 10 knots. Gun-boats "Scheffket-Numa," "Seyadi-derja," 200 tons, 400-I.H.P., 15 knots.

Austria-Hungary, Spain, Sweden and Norway, Greece, Portugal, and the United States launched no vessels of any size last year.

AUSTRIA-HUNGARY.—The following appointments have been made: Vice-Admiral—Freiherr von Spaun to command of Manœuvre Squadron and of the battle-ship division of the same. Rear-Admiral—Freiherr von Minutello to command of cruiser division of the Manœuvre Squadron. Line-of-battle-ship Captains—J. Schellander to command of "Panther" and of torpedo flotilla of Manœuvre Squadron; R. Berghofer to "Kronprinz Erzherzog Rudolf"; R. Spetzler von Oltramare to "Tegetthoff"; F. Ritter Perin von Wogenburg to "Kronprinzessin Erzherzogin Stephanie"; K. Ritter von Polti to "Kaiserin und Königin Maria Theresia"; J. Reznicek to "Kaiserin Elizabeth"; F. Anton von Pirkershausen to "Kaiser Franz Josef I."; M. Sachs to "Pelikan"; C. Schonta von Seedank as Head of the Coast Survey Bureau at Trieste; C. Edler von Adamovic as Deputy of Commandant of Dockyard at Pola. Frigate Captains—Jenik-Zasadsky Ritter von Gämsendorf to be Chief of the Staff of Manœuvre Squadron and of the battle-ship Division; G. Dell'Adami to be Chief of the Gunnery Staff of Instruction of Manœuvre Squadron; C. Edler von Pott to "Aurora"; E. Pammer to Torpedo-boat Director of the Dockyards. Corvette Captains—F. Freiherr von Der Decken zu Himmelreich to be Chief of Staff of the Cruiser Division of Manœuvre Squadron; A. Toppo to "Trabant"; A. Martinitz to "Planet." A. Ritter von Raimann to command of Second Seamen's Depôt.—*Die Reichswehr.*

The following ships have been commissioned for the Summer Manœuvres:—Battle-ships—"Kronprinz Erzherzog Rudolf," (flagship of Vice-Admiral Freiherr von Spaun, Commander-in-Chief), "Kronprinzessin Erzherzogin Stephanie," "Tegetthoff." Armoured-ram-cruisers—"Kaiserin und Königin Maria Theresia" (flagship of Rear-Admiral Freiherr von Minutello), "Kaiser Franz Josef I.," "Kaiserin Elizabeth." Torpedo-cruiser—"Panther." Torpedo-avisos—"Satellit," "Planet." Torpedo-Depôt-ship—"Pelikan"; and 12 Torpilleurs-de-haute-mer.

The manœuvres will take place between the 10th August and the middle of September. The Emperor will be present during the last portion of the time. Twenty-two ships will take part, including four iron-clads.—*Die Reichswehr.*

It is reported that a change is to be made both in the Imperial Standard for the Emperor and Empress when flown on board ship, and in the flags for Admirals and Generals when embarked and entitled to fly distinguishing flags. The Imperial Standard is, as far as the Coat of Arms goes, the same as the one in use up to the present, but along the two upright sides in the yellow field are now

placed one above the other three Imperial crowns, with an additional one in the centre of the lower edge. In that for the Empress, on the other hand, there is only a crown in each of the four corners of the yellow field. No change has been made in the standards borne by other members of the Imperial House. All standards are to be flown at the main. The three ranks of Admirals are to bear yellow stars on their flags as distinguishing marks in the future. An Admiral will have three stars, one each side in the white centre-field of the Coat of Arms and the third in the centre of the lower field. A Vice-Admiral will carry two stars, one on each side of the centre-field of the Coat of Arms; and a Rear-Admiral one star only, which will be placed in the centre of the lower field. No change has been made in the Commodore's broad-pennant or in the ordinary pennant. Generals, when entitled to fly a flag afloat, are to have the same number of distinguishing stars, borne in a similar fashion as for their corresponding ranks in the navy. With regard to these reported changes, the *Reichswehr* observes that the new standard seems to be copied from the German, and that the choice of the yellow stars as the distinguishing insignia for the different ranks of officials does not seem a very happy one, as the yellow stars on a white field adjoining the yellow borders of the Coat of Arms will be difficult to make out.—*Die Reichswehr*.

FRANCE.—The following are the principal promotions and appointments which have been made:—Rear-Admiral Barréra to Vice-Admiral; Capitaine de Vaisseau Boulineau to Rear-Admiral; Capitaines de Frégate Dupré and De Rocher to Capitaines de Vaisseau; Lieutenants de Vaisseau Fauque de Jonquières, Bonifay, Ytier, Dufaure de Lajarte, Fririon, and Guiberteau to Capitaines de Frégate.

Vice-Admiral Barréra to be Maritime Prefect of the 2nd Arrondissement Maritime (Brest); Rear-Admiral Fournier to be Chief of the Staff of the 2nd Arrondissement Maritime. Capitaines de Vaisseau—Reculoux to "Laclocheterie," and to command of Newfoundland Naval Division; Daniel to "Melpomène"; Cornut-Gentile to "Indomptable"; De Barbeyreau Saint-Maurice to "Terrible"; Gadaud to "Davout"; Vranken to "Sfax"; Marquer to command of Naval forces at Majunga and the River flotilla in Madagascar. Capitaines de Frégate—De Faubournet de Montferrand to "Calédonien"; Houette to "Manche"; Vicel to "Nièvre"; Le Nepvou de Carfort to "Vautour."—*Le Moniteur de la Flotte*.

Work on the new battle-ship "Charlemagne," at Brest, is being pushed on, and it is now hoped that the ship may be launched in October next, which will be twenty months from the laying of the first section of her keel; should the launch take place at that date, it will be a record in battle-ship building in French dock-yards. The new battle-ship "Gaulois" is to be laid down on the slip when vacated by the "Charlemagne."

The new armoured cruiser "Latouche-Tréville" on her final four hours' forced-draught trial developed 8,450-I.H.P., being 150-I.H.P. over the contract; the mean speed was 18.16 knots, being .4 of a knot below the estimated speed, which was 18.5 knots. M. Weyl, in the *Yacht*, points out that up to the present all the trials have been carried out under favourable conditions, and hopes that, as the ship has at last joined the Northern Squadron, it will be possible to find out what she really can do in speed, coal-consumption, and endurance under ordinary sea-going conditions.

The new torpedo-aviso "Cassini" has arrived for her trials at Cherbourg from Havre, where she was constructed at the "Forges et Chantiers de la Méditerranée," making the passage between the two ports in three hours, averaging something over 18 knots *en route*; she is a sister-ship to the "D'Iberville," but with 4 inches more beam, and is of a somewhat similar type to the English "Sharpshooter" class.

The new third class cruiser "Linois," built at La Seyne by the "Forges et Chantiers de la Méditerranée," has made a preliminary trial of her machinery, and

will shortly proceed to Toulon for her official trials. She was designed by M. Lagane, and is an improved "Surcouf," somewhat larger, and built upon finer lines, in order to obtain a higher speed. Her dimensions are as follows:—Length, 321 feet 6 inches; beam, 34 feet 6 inches; and with a draught of 17 feet 5 inches, displaces 2,275 tons. Her engines are to develop 6,600-I.H.P., and will give an estimated speed of 19 knots, or of 20 knots with forced draught. The protection consists of an armoured deck $1\frac{1}{2}$ inch thick, and there is a conning-tower with 3·9-inch plating. The armament consists of two 10-centimetre (3·9-inch) quick-firing guns, one forward and one aft, four 14-centimetre (5·46-inch) quick-firing guns in sponsons, eight of 47-millimetre (1·8-inch) and four of 37-millimetre (1·4-inch), as well as four machine guns of the last-named calibre, and four torpedo tubes, of which two are in the bows, and one on either broadside. There are two fighting masts, armed with the smaller quick-firing guns. The "Linois" was laid down at La Seyne on January 4th, 1892, and launched on January 30th, 1894.

Among other changes, which are being carried out on board the "Hoche" at Brest, are the removal of her after military mast and of the superfluous portions of her superstructure to the extent of some eighty tons in weight; moreover, six of her 14-centimetre (5·46-inch) guns are to be removed from her main auxiliary battery, in which fourteen have been carried up to the present, but as quick-firing 14-centimetre guns are to be substituted for the old-pattern ones it is considered that there will not be much loss of fighting power. The four mounted for end-on fire at each extremity of the superstructure are retained, and it is further proposed to protect the remaining eight guns in the main battery by steel splinter shields, the want of such protection being considered a grave defect.

The demolition of the superstructure of the "Brennus" is now completed, as also the removal of her after military mast; but the work of re-construction is not likely to be completed for some months.

The new second class cruiser "Chasseloup-Laubat," undergoing her trials at Cherbourg, is to have her military masts razed and the fighting tops removed, as has been done in the "Friant." In the latter vessel four torpedo tubes have been also removed, two broadside and two stern ones; only leaving the two bow tubes, and as the corresponding accumulators and air compressors also go, there will be a further saving of weight. The ship is now nearly ready to re-commence her trials.

Acting on the recommendation of Capitaine de Vaisseau Boutet, the director of Submarine Defences at Toulon, the Minister of Marine has approved of the trials of the submarine boat "Gustave Zédé" being postponed, not only on account of the bad state of her accumulators, but also with a view of further studies as to what modifications can be made, which will tend to make her more successful than she has been up to the present.

The Minister of Public Works has approved of the construction of some new bridges and roads, in view of the new port which it is proposed to construct on the Gulf D'Juan. The project includes the building of a quay, a jetty, and dredging works. The estimated cost will be 390,000 francs, of which 80,000 francs will be charged to the Ministry of Marine.

The second class cruiser "Davout" has been commissioned at Rochefort, and is to proceed to join the Active Division of the Mediterranean Fleet.—*Le Yacht, Le Moniteur de la Flotte, and Le Temps.*

The work on new constructions for 1895 has been distributed among the different arsenals as follows:—At Cherbourg, the second class cruisers "Duchayla" and "Cassard." Both these vessels are very similar to the "Chasseloup-Laubat" class; the "Duchayla" has made the most progress, the lower portion of the hull with the armoured deck being almost finished, while her upper works are also being pushed on apace; of the "Cassard" the frames only are as yet in position. Completing afloat and undergoing their trials are the

second class cruisers "Chasseloup-Laubat" and "Bugeaud," while the torpedo aviso "Fleurus" is receiving her new boilers, and several torpedo-boats will also be delivered from the constructors for trials during the year.

At Brest.—There is only one ship on the stocks, the new battle-ship "Charlemagne." All the lower portion of her hull is completed, and the upper works are in hand. Fitting-out is the battle-ship "Charles-Martel," but as her armour is not yet placed it is difficult to say how soon she will be ready for her trials; while the "Brennus" and "Hoche" are undergoing alterations, which have been already described. The armoured-cruiser "Dupuy-de-Lôme," the second class cruiser "Friant" and the torpilleur-de-haute-mer "Lansquenet" are all again resuming their trials; while the coast-defence battle-ship "Valmy," a sister-ship to the "Jemmapes," and the second class cruiser "Descartes" are expected from Saint-Nazaire to commence theirs.

At Lorient.—On the stocks are the new battle-ships "Bouvet," which ought to be ready for launching this year, and the "Saint-Louis" scarcely commenced; nearly ready for her trials is the new coast-defence battle-ship "Tréhouart."

At Rochefort.—On the stocks the third class cruisers "Galilée" to be launched about the middle of this summer, and the "Lavoisier," which will not be ready to take the water before next year. Fitting-out and preparing for trials are the new armoured cruisers "Charner," "Chanzy," and "Bruix," and the torpilleurs-de-haute-mer "Sarrazin" and "Tourbillon," while later on will arrive for their trials from the building yard of the "Gironde" at Bordeaux, the torpedo-dépôt ship "Foudre," and the torpedo-aviso "Casabianca."

At Toulon.—On the stocks the second class cruiser "Pascal," a sister-vessel to the "Descartes," launched last year at Saint-Nazaire, is advancing rapidly, and will soon be ready for launching, while the new battle-ship "Carnot," fitting-out alongside the yard, is to be ready for her trials next year; the "Jauréguiberry," and the third class cruiser "Linois" will arrive from La Seyne during the year for their trials, while the new coast-defence battle-ship "Bouvines" has already commenced hers.—*Le Yacht.*

GERMANY.—The following are the principal appointments, etc., which have been made:—Rear-Admirals Pirner and Aschenborn placed on retired list. Captain—Lavaud to "Heimdall." Corvette-Captain Follenius to "Pfeil."—*Marine-Verordnungsblatt.*

We are giving a photograph of the "Beowulf" (*see frontispiece*), one of the class of small coast-defence battle-ships, of which the German Admiralty have already launched seven; while another, the eighth, known as "T," is to be launched almost immediately at Kiel. The first of the series, the "Siegfried," was launched from the Germania yard, at Kiel, in 1889; the next, the "Beowulf" and the "Frithjof," were launched from the Weser yard, at Bremen, in 1890 and 1891 respectively; the fourth, the "Heimdall," was launched from the Imperial yard, at Wilhelmshaven, in 1892; the fifth and sixth, named "Hildebrand" and "Hagen," were launched from the Imperial yard, at Kiel, in 1892 and 1893 respectively; and the seventh, the "Odin," in the autumn of last year, at the Imperial yard at Dantsic, a yard which has never before built an ironclad, and has hitherto undertaken only wooden or composite vessels. The ironclads of this class were originally designed as coast-defence ships only, and were more expressly designed for the protection of the two ends of the North Sea and Baltic Canal; but they have proved suited for service as small battle-ships, and their sea-keeping and fighting qualities are considered so good that they are now classed as fourth class battle-ships. During the manœuvres last year some of them formed the fourth division of the evolutionary fleet, and the captains' reports spoke most highly of all of them. The eight ships resemble one another very closely, though the two latter ones are slightly

larger and embody certain improvements which the earlier ones lack, as, for instance, they have nickel-steel armour, and "T" (the one yet to be launched) has water-tube instead of locomotive or cylindrical boilers. All are remarkable for the very small amount of wood that has been employed in their construction; and this fact, in the light of the great number of fires caused by bursting shells in both Japanese and Chinese ships during the recent action off the Korean coast, shows the prescience of the German Admiralty. Indeed, in the latest ships of the series there is hardly any wood at all. They are also steam-heated throughout. The first six are 239 feet 6 inches long, 48 feet 9 inches beam, and, at a displacement of 3,500 tons, draw 17 feet 9 inches of water. The engines, driving twin-screws, are of 4,800-I.H.P., and give a speed of between 15 and 16 knots. The two later ones are 253 feet 4 inches long, 48 feet 9 inches beam, have a displacement of 3,600 tons, and engines of 5,000-I.H.P., giving a speed of 16 knots. The armour consists of a complete all-round belt 7 feet 6 inches broad and 10 inches thick—except in the case of the latest ship "T," which has a partial belt and armoured citadel—of two covered barbettes of 8 inches steel, of a 2-inch steel deck, covering engines, boilers, torpedo rooms, and magazines, and of steel shields for all guns. The armament consists in each case of two 9·4-inch long Krupp breech-loading guns in the forward barrette, and one similar gun in the aft barrette, and of six 3·4-inch Krupp quick-firing guns, disposed three on each broadside, the latest ship "T," however, carrying ten 3·4-inch quick-firing guns. There are, besides, eight small quick-firing guns and four torpedo ejectors, one being forward, one aft, and one on each beam; two tubes are submerged. The torpedo-armament of each ship has cost £27,800; and the gun armament £76,500; and the mean total cost per vessel is £322,800. The "Siegfried," "Beowulf," "Frithjof," "Heimdall," and "Hildebrand" are already attached to the North Sea Fleet, and the "Hagen" forms part of the Baltic Fleet, to which "T" and the "Odin" will be added as soon as they are completed. It is probable that at least two more ships of the class, to be provisionally known as "W" and "X," will presently be laid down, although no definite provision for them has yet been made.

At the opening of the North Sea and Baltic Canal, in June, by the Kaiser, there is to be an imposing naval display, all the Great Powers having been invited to send squadrons to represent them on the occasion. All the available ships of the Imperial Navy will take part in the ceremony; viz., the Manœuvre Squadron, consisting of four first class, two second class, and one third class battle-ships, six, probably, of the fourth class battle-ships of the "Siegfried" class; the cruisers "Kaiserin-Augusta," "Gefion," "Prinzess Wilhelm," and two avisos; the Training Squadron, consisting of the cruiser-frigates "Stein," "Stosch," "Moltke," and "Gneisenau"; the Gunnery-school ships "Mars," "Carola," and "Hay"; the Torpedo-school ships "Blücher" and "Luise"; the torpedo-transport ship "Pelikan," the torpedo-avisos "Blitz," and a large torpedo flotilla. Altogether, the German Navy will be represented by some fifty-five or sixty vessels of all classes. —*Kieler Zeitung*.

The new battle-ships "Kurfürst Friedrich Wilhelm" (flagship of the Commander-in-Chief, Vice-Admiral Koester), "Brandenburg," "Weissenburg," and "Wörth," forming the first division of the Manœuvre Squadron, were to be ready for sea at Wilhelmshaven during the first week of this month, and it is stated that they are to make a cruise into the Atlantic, in order to effectually test their sea-going qualities.

On the 5th inst. the Kaiser arrived at Wilhelmshaven and was present at the swearing-in of the naval recruits, whom he addressed as follows:—

"You have come here to take your oath of allegiance. It was an old custom with our forefathers, and they held it a sacred duty to perform their oath loyally. Just as I, your Emperor and Sovereign, devote my every act and thought to the

Fatherland, so are you bound to give up your whole life for me. For you have taken the oath as Christians, and two servants of God have spoken to you in Christian spirit. On your war flag you behold the eagle, the noblest creature of the universe. Strong in its youth, it soars high in the air beneath the rays of God's sun, knowing neither fear nor danger. So also must be your thought and act. You are coming now to the time when, in the serious business of your service, demands will be made upon you which will be heavy, when many an hour will come in which you will think yourselves unequal to your task. Then remember that you are Christians, think of your parents, and how your mothers taught you the 'Our Father.' When abroad, your duty will be to represent the Fatherland by your worthiness and your good behaviour. Our navy is outwardly indeed small, but what makes us stronger than other navies is discipline, unhesitating obedience to superiors. Thus will our navy prosper and grow great in the work of peace, and for the benefit and good of the Fatherland; and thus, as we hope in God, shall we destroy the enemy. Be you like the Brandenburgiers of old."

After the ceremony the Kaiser proceeded to the dockyard and was present at the laying of the first keel-plate of the new battle-ship to replace the "Preussen," he then inspected the crew of the "Brandenburg," which ship was lying alongside the yard, and finally embarked on board the flag-ship "Kurfürst Friedrich Wilhelm," on board which ship special accommodation is provided for him. The next morning the "Kurfürst Friedrich Wilhelm" weighed in company with the fourth class battle-ship "Frithjof," and the second class cruiser "Prinzess Wilhelm," when course was shaped for Heligoland, where, however, the Kaiser was prevented by the state of the sea from landing; the squadron then steamed to Brunsbüttel, where the Kaiser landed and inspected the canal works, after which he proceeded to Bremen, disembarking at that port and returning to Berlin.

Admiral Knorr, Commander-in-Chief of the Baltic Station, has been ordered to Berlin, to take over the duties at the Ministry of Marine of the Commanding Admiral of the Navy; Freiherr von der Golz, during the absence of the latter, through illness, from his post; Admiral Knorr's duties at Kiel will be temporarily discharged by Rear-Admiral von Reiche, the Director of the Naval Academy at Kiel.

The Boys' Division for the current year is fixed at 600, of which number thirty-four are instructors and the remaining 566, boys. It is stated that the time of training is to be reduced from three to two years, and that material alterations will be made in the regulations for entry. Instead of joining between fifteen and sixteen years old, boys must now be really sixteen, and a slight increase in the chest measurement has also been made. Moreover, the whole time of service is reduced from twelve years to nine, including the two years' training period and three years on active service—a change which is likely to make the navy more attractive.

During the coming spring the torpedo flotilla will be increased by the delivery from the Schichau firm at Elbing of the new Division-boat "D 9" and eight torpilleurs-de-haute-mer "S 74" to "S 81," while another Division-boat "D 10" is completing by the same firm. Both the new Division-boats and torpedo-boats are somewhat larger than their predecessors, have greater displacement, more powerful engines, greater speed, and better accommodation for the crews. The new Division-boats have three boilers instead of two and the torpedo-boats two boilers instead of one. "D 9" has already made her preliminary trials, and during a five hours' run in a rough sea and at her sea-load draught made an average of 23.67 knots. She has a displacement of 380 tons and her engines develop 4,500-I.H.P. or 13-H.P. to each ton of displacement. The armament consists of six small quick-firing guns, three torpedo-tubes, and as she has a radius of action of 5,000 miles, in war time the new vessel could be used as a torpedo-boat catcher.—*Neue Preussische Kreuz Zeitung*.

RUSSIA.—The two principal foreign squadrons of the fleet, the Pacific and Mediterranean, will consist for the year 1895 of the following ships:—In the Pacific, under the command of Rear-Admiral Alexieff, the first class armoured cruisers—"Admiral Nachimov" (flag) and "Pamjat Azova"; the first class protected cruisers—"Admiral Korniloff" and "Rynda"; the second class cruisers—"Razboinik," "Kreiser," "Djighit," and "Opritschik"; gun-boats—"Mandzur," "Bohr," "Korejetz," "Siwutsch," "Gremjasčiji," and "Otvajny"; torpedo-cruisers—"Vsadnik" and "Gaidamak"; sea-going torpedo-boats—"Sweaborg," "Kotka," "Revel," and "Borgo"—a total of twenty-one pennants, carrying 4,033 men. In the Mediterranean, under the command of Rear-Admiral Makaroff, are:—Battle ship—"Kaiser Nicolai I." (flagship); first class armoured cruiser—"Vladimir Monomach" and the gun-vessel "Kubanetz"; of these vessels the "Kaiser Nicolai I." and the "Kubanetz" are to return to Russia during the year, their places being taken by the new battle-ship "Navarin," the armoured cruiser "Rurik," and the gunboat "Tschernomoretz"; the squadron will thus consist of four pennants, carrying 1,884 officers and men. On special service will be the second class cruiser "Strjelok" in the Arctic Ocean for the protection of the Fisheries, the transport "Jakut" in the Pacific for the same purpose, and the first class armoured cruiser "General-Admiral" in the West Indies and Atlantic, as training-ship for seamen; at Constantinople the despatch vessels "Kolchida" and "Bujak-Dere," and at Galatz the "Psezuape," making a total of thirty ships on foreign service. An addition has been made to the strength of the Black Sea Fleet by the completion of the new battle-ship "Georgi Pobjedonosec"; she was laid down in 1889, is 328 feet long, 69 feet beam, and, with a mean draught of 26 feet, has a displacement of 10,280 tons; her engines develop 10,600-I.H.P., giving her a speed of 16 knots; she has an armour belt of 16-inch compound armour, with 12-inch armour on her turrets, in which are mounted four 12-inch 56-ton guns, and carries as an auxiliary armament seven 6-inch, eight 10-centimetre (3·9-inch) quick-firing guns, and sixteen 3-pounder and 15-pounder quick-firing guns, with seven torpedo-tubes. Her complement consists of 500 officers and men.

The Manœuvre Squadron this summer in the Black Sea will consist of the following vessels:—First class battle-ships, "Georgi Pobjedonosec," "Tschesma," "Sinope," and "Dwjenadzat Apostolow"; first class cruiser, "Pamjat-Merkuria"; torpedo-cruisers, "Kapitan-Sacken" and "Kazarski"; the transport, "Dunai," and fourteen torpedo-boats. In 1895 there will be in commission in home and foreign waters altogether 212 war vessels.—*Die Reichswehr.*

MILITARY.

FORTIFICATION

SINCE THE INTRODUCTION OF HIGH EXPLOSIVE SHELLS.

Continued from p. 109. (Reprinted by permission from the R.E. Corps Journal.)

Deductions from the Experiments, and Suggested Improvements.—The results just described appeared, at the commencement of the experiments, so extraordinary that it was thought that existing fortifications were for ever condemned, since there were no parapets or shelters capable of resisting the new projectiles. However, it was soon recognised that although the situation was serious, it was not without remedy.

Three ideas were brought forward :—

1. To give to the covering masses a sufficient thickness to allow them to resist the effect of the new projectiles.
2. To change the building materials, so as to obtain, with limited thicknesses and spaces, the necessary resistance.
3. To modify the organisation of the works, as well as their action, in the general scheme of defence.

Thickening the Parapet.—This has been carried out partially in France, but most foreign engineers have entirely rejected the idea on account of the inconvenience caused by the increase of space this change entailed.

Change of Building Material.—As we have seen, it was recognised at Bourges that concrete masonry behaves better than rubble, and that a cushion of sand was useful for localising the effects of explosives, and for deadening the shock, whilst at the same time helping to stop the penetration of shells.

Modification of the Organisation of the Works.—As it was shown over and over again in various experiments that guns mounted against the sky-line were henceforth condemned to premature destruction, people were led to make new experiments with armoured defences, especially with cupolas, to cover the guns. The results were satisfactory, and allowed them to assume that such special arrangements can give sufficient protection to certain special pieces which the forts ought to have in them for long-range action.

Still, the price of installation of a number of armoured guns, and the various inconveniences already mentioned as attending such installation, led certain military engineers to modify, often in a very radical manner, at least in their proposals, the general system of organisation and of the defence of works.

The proposals which were brought forward with reference to these modifications that should be adopted in new fortifications have reference entirely to the two last of the ideas mentioned above, and we will now consider those proposals that best solve the required conditions.

NEW FORTIFICATIONS.

(1). *Alterations of Detail due to change in the Nature of the Materials used in the New Fortifications.*

Details considered.—As we have just shown, these alterations are due principally to the employment of concrete and armoured defences, in so far as these latter affect the details of fortification. Still, we cannot study minutely these different details, because there does not exist so far a sufficient number of typical examples, each engineer having his own ideas, and each nation endeavouring to keep secret its works of construction or re-construction.

Cement Concrete.—The concrete employed is a mixture of slow-setting cement and stones, mixed with care, and clear of earth and mud. The proportions of cement, sand, and stone vary with the situation of the concrete masses. Thus, in France, for the surroundings of the tourelles tried at Chalons, a cubic yard of cement consisted of a cubic yard of broken stones or shingle, $\frac{1}{35}$ of a yard of cement, and $\frac{30}{35}$ of a yard of sand.

As a general rule, concrete masses should only present to projectiles rounded and sloping surfaces likely to induce ricochets. When they are sunk in the ground they should go deep down, so that they cannot be undermined and blown up by explosions. There should be no joints in the concrete. The piers and the arches of shelters or casemates should be at least 8 feet thick.

Cupolas (or Tourelles).

Armour is always used in the case of cupolas or tourelles, but it is also employed to protect the vulnerable portions of certain shelters, gun casemates, observatories, caponiers, etc.

Till recently, as a completely satisfactory type of cupola had not been designed, these defences were rarely employed except in the *forts d'arrêt*, or in

works designed for a like purpose ; but the experiments of late years at Chalons have proved that the effect of high-explosive shells against cupolas is not greater than that produced by the old projectiles.

The employment of armour will, then, become more general.¹

General Arrangement and Form of Cupolas.—We shall use indifferently the term *cupola* or *tourelle*, but it is more usual to give the name *tourelle* to an up-standing armour with a flat top, and *cupola*, on the contrary, where the top assumes a spherical form, and the whole arrangement turns on an unarmoured framework sunk in the mass of the parapet. Both consist of the following parts :—(1) An armouring containing the guns (*cuirasse*). (2) A front armouring (*avant-cuirasse*). (3) Different kinds of masonry. (4) Machinery to impart motion.

Choice of Metal.—Chilled iron has been given up for the main armour, because it does not well resist the forged and tempered steel shells, which produce dangerous cracks in it. Various experiments have been tried with different metals, but wrought iron is the metal which, so far, has given the best results, taking its cost into account.

Number of Pieces.—The cupolas usually have two heavy guns in each of them.

The disadvantage of 2-gun as offered to 1-gun cupolas are :—The dangers of a shot through an embrasure are doubled ; two pieces are put out of action if for any reason the cupola stops working ; unless the guns are fired simultaneously, the fire of the second gun is affected ; they are more quickly dismantled than twice the number of 1 gun cupolas ; and they are more difficult to work.

The advantages in favour of the 2-gun cupolas are :—Each costs 40 per cent. less than two single-gun cupolas ; their employment allows of a reduction in the size of a work, and consequently in its cost ; and the *personnel* need not be so great.

As, however, one can by means of various devices almost entirely do away with the dangers of a shot through an embrasure, it comes about that 2-gun cupolas are more advantageous than 1-gun cupolas.

Mountings.—At first very costly hydraulic mountings were employed, which are uselessly wasteful of time and power, and which have been the cause of accidents, on account of the enormous pressure which the glycerine undergoes in the recoil. However, these mountings are independent of the armouring : an indispensable condition if it is desired to avoid their destruction from following on a breaking up of the armour under the blows of projectiles.

Method of Use. The numerous conditions which it is necessary that the artillery of the defence should satisfy entail two general varieties of cupolas—(1) Those intended for direct fire at a long range. (2) Those which are only for indirect fire, that is to say, to carry on more particularly the close artillery attack.

As a result of experiment, it has been proved that every *tourelle* that is visible will soon be destroyed. As a consequence, it has been deduced that *tourelles* should be of a disappearing type, where, in order to carry out their object, they must stick out above the surrounding parapet.

Disappearing tourelles are those which, besides having a movement of rotation round a central pivot, have besides a vertical movement which allows them to mask their embrasures, and even the whole *tourelle*, when they are not firing. By this means there is less chance of a shot through the embrasure, because when once the laying is fixed the *tourelles* need no longer rise, except for the few seconds necessary for firing. The advantages of this type of *tourelle* are undeniable, but at first it was only possible to adopt them for guns of small calibre, revolving cannon, and mitrailleuses. But the difficulties which presented themselves in the application of this principle to heavy pieces having now been overcome, it

¹ This seems at variance with what is stated later on under the head of "Proposed Modifications of the General Organisations of Fortresses."—T.R.M.

has been decided in France to construct on the disappearing principle all cupolas intended to shelter the long guns intended for direct fire, or, in fact, for any fire on positions which the range of the shorter pieces would not suffice to attain. The old pattern tourelles, or ordinary cupolas, occupying well-hidden positions, will be reserved for cases where it is proposed to search with curved fire close positions.

Mechanism.—The rotary motion of the old tourelles was effected on a ring of rollers or balls, which insured stability more easily than by using a pivot, and the system is applied to the heaviest existing tourelles of all the Powers. By supporting the weight of the apparatus by a central pivot, especially if it is an hydraulic one, the rotary movement is much helped, and it can be more quickly carried out; but it is better, on the whole, not to have recourse to these hydraulic pivots, which entail in every case complicated gear and present serious inconveniences.

Motion is conveyed to the cupolas by means of hand, steam, or hydraulic motors. The simplest mechanism, that is to say, working by hand, is preferable; for the presence of steam engines and accumulators complicates the working, and requires the provision of coal and a special *personnel*, without mentioning the increase of first cost.

Varieties.—There is an endless variety of cupolas, which may be distinguished as follows:—(1) Cupolas for one or more pieces. (2) Disappearing or not. (3) For long guns or for ordinary guns. (4) For quick-firing guns. (5) For mitrailleuses or revolving cannon. (6) For rifled howitzers or mortars.

[Here follows a long description of the different cupolas and tourelles that have been suggested or experimented on from time to time, but there appears nothing new or worthy of note, except in the description of the "Tourelle Galopin," which latter seems to have found considerable favour in France.—T.R.M.]

The Galopin Tourelle.

A disappearing tourelle, designed by Commandant Galopin, was experimented with in 1892 with such successful results that it has been definitely adopted in France.

The following is its description:—The cupola, *A*, rests on a sort of column of wrought iron capable of turning horizontally on the circular support, *f*, by means of conical rollers, *g, g*. This support can slide on the pillar, *K*, which props it up. A counterweight, *D*, balances the cupola by allowing an excess of weight to the latter, which does not come into equilibrium till the moment when it comes to the lowered position, where it is held down by the bolts, *i, i*. Some jointed bars, *d, d*, transfer the pressure of the lever to the circular support, *f*.

To raise the cupola an accumulator is employed, which should consist of a moveable weight placed near the counterweights, *D*, and which may be easily raised so as to be added to these latter. The counterweights then, possessing a preponderance, raise the cupola to the firing position, where it is held by catches, *h, h*, whose release takes place automatically by electricity at the moment of firing.

The preponderance of weight is then transferred to the cupola by the automatic falling of the weights of the accumulator, so that as soon as the shot is fired the cupola is able to descend to the disappearing position.

The characteristic of the compensating system of the Galopin tourelle lies in the alteration of the leverage, by which the preponderance of weight passes alternately from the cupola to the counterweight in the different portions of the movement.

This alteration of the moment of leverage of the force is obtained by varying the length of the lever arm of the counterweight, and the change of weight on the accumulator. Furthermore, so as to allow the arm, *b*, to move on the surface of the table, *a*, the pivot of the two-armed lever is not a fixed one.

This system of tourelle offers great advantages, for it is very solid and simple, so that there is no fear of a breakdown in the working of the apparatus, which can

be worked by manual labour, and does away with the use of any other motor. Further, by doing away with all jars and shakings, whilst working the vertical movement with a scarcely sensible excess of balance, one is able to effect this movement much more rapidly. The tourelle can rise and fall in five to six seconds. This is important, because it has been found in France that in the space of twelve seconds the embrasure of the cupola could easily be injured. The system requires no steam engine, and is cheap.

Armoured Caponiers.—Armoured caponiers proposed for the flanking of ditches have the disadvantage of requiring an enlargement of the ditch, thereby making gaps by which breaches could be made. Their employment appears, therefore, to have been abandoned. An experiment was made at Chalons, and with satisfactory results, of *minimum caponiers* (*caponnières minima*), metal boxes, in which are arranged the magazines and other necessary stores in the most economical way possible.

Armoured Casemates.—Armoured casemates (*i.e.*, armouring for a single piece), or casemated batteries (for several pieces), are less in favour than cupolas. This is explained by the difficulties which are experienced in masking the embrasures, and by the limitation of their field of fire. Still, such defences are admissible, and even advantageous in certain cases, as, for example, in the flanking of the intervals between forts, or for firing on isolated but important points from the *forts d'arrêt*, etc., etc.

This question of armoured casemates was considered for a long time by a special commission in France, who eventually proposed two types of casemate blinded with Gruson cast iron, the one to resist field guns, the other to resist siege guns, differing but little from one another except in the thickness of their armour. Figs. 2 and 3, Plate XVI., show the section and plan of such a casemate, the front portion being covered with a sort of turtle back specially favourable to ricochets. The plates of this casting, of a variable thickness, according to the attack they are likely to have to meet, rest on masses of cement concrete, and the roof is covered over with a cushion of the same, and with at least six feet of earth. To diminish the possibility of a hit on the embrasure, the latter is only 12 inches high by 16 inches broad on the outside, and, furthermore, a piece of cast iron called the *bolt* allows of masking this embrasure when the piece is not ready to fire, and protects, at the same time, the portion of the armouring called the *shield*, in which it is mounted. The bolt, balanced by a counterweight, is put in motion by machinery inside the casemate. The pulleys, which carry the chains connecting the bolt to the counterweight, are fixed on a vertical spindle in the middle of the bolt, so that the latter protects its own moving arrangements. The front of the casemate is protected by a concrete mass turned downwards into sand.

Observatories and Lighthouses.—Many kinds of armoured observatories have been proposed of the type of the disappearing cupolas, of a very small diameter, and arranged according to the part they are called upon to play. Also, to meet possible night attacks, or for sorties attempted at night during rain, it appears necessary to light up the ground to some distance by means of lighthouses (*phares*), so as to get the full advantage of the new fire-arms. One can actually light up the ground to a distance of 3,000 yards at least by means of the electric light. This lighting up of the field of fire will also act as a guarantee against surprises.

It is only necessary to slightly increase the dimensions of the observatory, so as to be able to place in it a light projector and a quick-firing gun. One then gets an observatory-lighthouse (*observatoire-phare*), such as are to be found on the summit of the Meuse forts.

The Front Armouring (Avant-cuirasse).—This ring of cast iron rises up to the lower edge of the embrasures, and dips down far enough to prevent shells which burst in the concrete from damaging the working chamber. It is buried in a concrete mass of at least 13 feet thick, outside which is a circular parapet of sand

of 16 to 20 feet. The ring itself is made in *voussoirs*, whose section is of a spherical form, and of a thickness gradually diminishing from the upper portion to the lower. It would be preferable to use wrought iron instead of cast iron, but motives of economy have caused the use of the latter.

Recapitulation.—As a summary, we may say that the employment of cupolas, which formerly was only allowed as an exception, has ended by being forced upon us. The numerous experiments to which they have been subjected show that they are capable of resisting the effects of the new projectiles, and that they alone can efficiently protect guns under cover. These experiments have brought out the following points as regards their form and details of construction :—

1. The best *metal* for the main armour (*cuirasse*) is wrought iron, until the time that we may get steel-plates which will not break up under the blow of projectiles. For reasons of economy, cast iron is used for the front armouring (*avant-cuirasse*); about 5 feet high, it has an approximate thickness of 12 inches at the top and 9 inches at the bottom. It has been deduced that a thickness of 7 to 9 inches is sufficient for the roof plates.

2. Reasons of economy have generally led to the use of 2-gun instead of 1-gun cupolas.

3. The *mountings* should not be attached to the armour, but should be arranged for a minimum embrasure and limited recoil, with an automatic return to the firing position.

4. The *mechanism* should be simple, and should not include either pivots or hydraulic apparatus.

5. The *cupolas* should be arranged for direct and for indirect *laying*, also for firing by electricity, and firing whilst in motion.

6. *Disappearing cupolas* are the best; the argument of economy and of complicated mechanism which prevented their adoption appears no longer to exist with the Galopin tourelle.

(2)—PROPOSED MODIFICATIONS OF THE GENERAL ORGANISATION OF FORTRESSES.

Observations.—We see that concrete work and armourings allow of our giving to fortifications, up to a certain point, the degree of resistance which they have lost. We shall explain later on how it is proposed to transform existing fortifications so that they may perform the part for which they were originally designed. But these transformations, purely of a material character, have now but a secondary interest; everything tends to show that the defence will more quickly find the power she has lost in a modification of the defensive system, that is to say, in a different arrangement of the elements.

The various experiments carried out since 1885 allow one to firmly state that fixed artillery showing up against the sky-line is henceforth condemned to premature destruction.

Still, artillery being always the principal arm at a siege, it is more than ever necessary to protect it. Many proposals have been made to carry this out. Some give the preference to armour to protect the artillery, others obtain this protection by the scattering or mobility of the pieces.

In fact, we must determine the best way of distributing and covering the artillery which should take part in all the different phases of the struggle, and which may be distributed in the forts or in the intervals between them. To arrive at a conclusion on the above points, it is necessary to consider the more important of the different proposals that have been put forth.

[Here follows a detailed description of the different schemes for arranging the elements of fortification which have been suggested by Brialmont, Mougin, Voorduin, von Sauer, Schumann, and others in late years, all of which can be found in Clarke's "Fortification" and other technical works. One little detail only appears worth noting, and that is the design suggested for counterscarp

walls and the back of casemates, so that they may resist the effects of high-explosive shells dropping at a high angle, as shown in *Fig. 1, Plate XVI.*, by removing from the back of the wall the point of burst of the shell.—T.R.M.]

(III.)—*Ideas which appear to prevail in France with regard to the New Organisation of Fortresses.*

What to select from the preceding Schemes.—To summarise, after eliminating the ideas of von Sauer and Schumann, which find little favour in France, the other proposals are all based on the adoption of a defensive line, which includes tactical points and batteries distributed over the intervals. The main differences which exist between these different proposals are the following :—(a) Ought the fort to take part in the distant struggle (Brialmont's system), or should its rôle be simply to flank at intervals (flanking work system)? (b) How should the defence proper of the fort be arranged? Should it have flanked ditches, or simply obstacles swept by musketry?

On account of the difficulty of sheltering the artillery in forts and of the high price of armouring, it is recognised amongst ourselves that all the artillery possible ought to be distributed in shallow order in the intervals of the defensive line.¹ This arrangement has besides the advantage of putting the defence under the same conditions as the attack, as far as the target to fire at is concerned, and the possibility of moving batteries when the enemy's fire becomes dangerous. Besides this, it appears to be allowed that there is a necessity for flanking the ditches of the forts.

Principal parts of the Organisation.—The defensive organisation will include three parts :—(a) A main line of defence. (b) A second position in rear (*ligne de soutien*). (c) An internal central position (*noyau central*).

But the principal duties hitherto assigned to the main line (with the eventual assistance of some batteries) will now be definitely allotted to special units; that is to say :—

The *action against the investing columns* will be entrusted to heavy pieces of long range placed in the forts, or protected by them.

The *active exterior defence* will be supported by an exterior defence line, constituting one huge defensive battle-field, at some 2,000 or 3,000 yards in front of the main line.

The *artillery duel* will be carried out from batteries of heavy and light pieces (9-inch to 5½-inch), which will fire independently. These batteries may be arranged in two classes :—

1. Those for direct fire, which will be placed immediately in rear of a crest so as to be hidden, and will be, besides, supported by certain entrenchments.
2. Those for high-angle fire, which can be hidden in rear in hollow spots.

Finally, the *resistance of the main line* will fall specially on the forts, with the assistance of the sectional troops and the mobile artillery.

ORGANISATION OF THE MAIN LINE OF DEFENCE.

Its different Portions.—This line includes the following :—

1. *The forts or intermediate works*, which are, at one and the same time, the pivots and the caponiers for flanking the intervals of the line, at a distance from one another of over 3,000 yards.
2. *The sunken (or out-of-sight) batteries*, armed with heavy pieces, constituting the fighting armament, and occupying the intervals between the forts.
3. *Some infantry intrenchments*, with epaulments for light pieces, placed in front of the batteries, so as to protect them.

PROPOSED NEW TYPE OF FORTS.

General Conditions.—These conditions are the same as formerly, but some of them are more difficult to carry out, that is to say :—(a) To maintain the pieces

¹ Most of us would agree to this as a general statement, but it does not altogether agree with the writer's remarks under the heading "Cupolas."—T.R.M.

in safety until the moment of attack. (b) To render the ditch and its flanking arrangements as far as possible invulnerable, and capable in some measure of arresting all kinds of attack. (c) To provide for the men positions at the same time safe and conveniently arranged for the requirements of the attack. (d) To form shelters and magazines absolutely proof against the new projectiles.

Armament.—To carry out its proper part, each fort should contain :—

(a) A certain number of long-range pieces allowing of dispersed fire, so as to worry the investing forces, and make them occupy a well-extended circle. These pieces would only be kept in the forts until the commencement of the siege, and would be placed so that they could be rapidly transported elsewhere.

(b) On each flank a battery of pieces of small calibre, intended to sweep the intervals of the forts, and to flank the intermediate batteries and the forts on either side. The part these pieces have to play requires that they should be efficiently covered—by cupolas for preference—as they do not come into action except at the moment when the main line of defence is seriously attacked.

(c) Some light field or quick-firing pieces intended to assist in the defence of the fort itself. These pieces should be protected when in the firing position not only against shells, but also against machine guns.

Siting.—Forts will continue to be placed on commanding positions; but instead of being placed, as our existing forts are, on the front of the position, they will be so far drawn back that the enemy cannot discover them at a distance. As the fort has no longer to play an active part, the drawn-back position presents no inconveniences, provided always that it is able to carry out thoroughly its flanking duties, and that it has in front of it for its own special defence a zone of 300 to 400 yards well swept by infantry fire or by quick-firing guns.

Distance Apart.—It has been stated that the forts should not be distant one from the other more than 3,000 yards, so that the intervals might in case of necessity be defended by musketry fire alone, whose effective range does not extend beyond 1,500 yards. It is necessary, in fact, to provide for the case where the guns in the forts may be silenced.

Shape.—The shape of the forts will depend, as hitherto, on the lie of the ground, and on the direction in which it is required to deliver flanking fire, but it is advisable to give as little depth as possible to the work, that is to say, that it shall present as extended a front as possible, with very short flanks. The enemy will then experience some difficulty in delivering a telling fire.

Calculation of Garrison.—For infantry, it is usual to allow one man per running metre of crest for the front and flank parapets, and half a man for those of the gorge, the total being, in round numbers, so many half-companies.

For artillery, one allows twelve men for each gun of position—eight gunners and four auxiliaries (infantrymen)—and nine men for each flanking piece—three gunners and six infantry.

PROFILE.—FLANKING ARRANGEMENTS.

Rampart and Parapet.—It is usual to allow a thickness of 35 to 50 feet to the parapet, dependent upon the nature of the soil.

To prevent the work from being seen from a distance, whilst preserving the necessary view so as to sweep the vicinity, the relief is only strictly sufficient for this latter purpose, and consequently is never more than 16 feet. At the same time, for a work on a level plain, and commanded by other points, it is of advantage to give such necessary relief as will allow of any easy construction of shelters.

On account of the low relief of the crest, the terre-pleins may be the natural soil.

By giving to the *infantry banquette* a width of from 20 to 26 feet, it is possible to rapidly instal there light or quick-firing guns, or even heavy guns, obtaining the necessary height to fire over by cutting down the parapet as required.

Fig. 1.

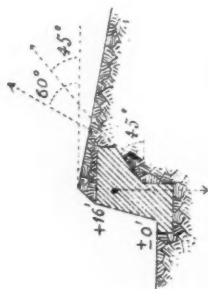


Fig. 3.

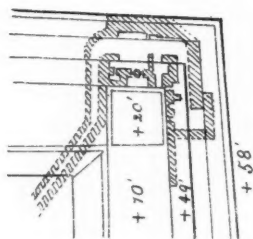


Fig. 2.

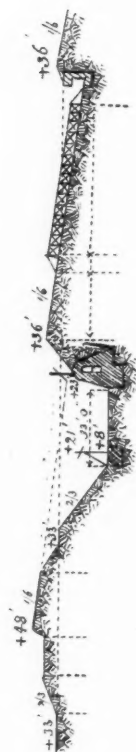


Fig 1.



Fig 2.



Fig 3.



Fig 4.

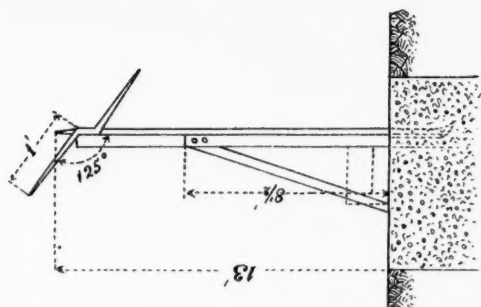


Fig. 1.
The Galopin Tourelle.

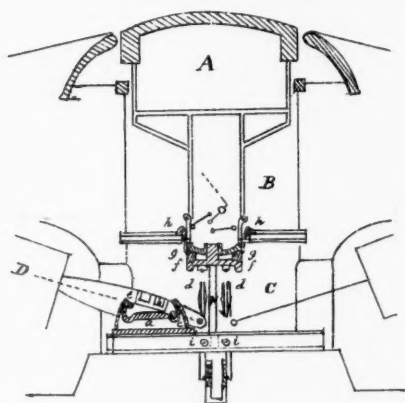


Fig. 2.
*Armoured Casemates,
Section.*

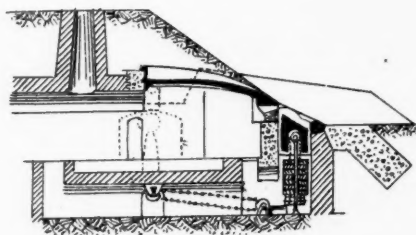
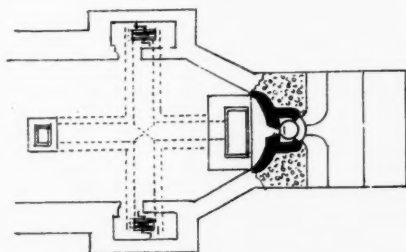
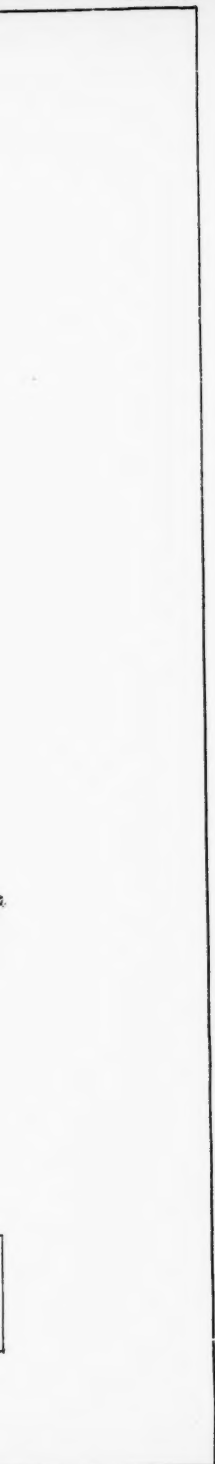


Fig. 3.
Plan.





The *superior slope* should allow of fire sweeping the palisading placed at the top of the counterscarp where there is one (*Fig. 2*).

The *exterior slope* is the natural one, and is separated from the escarp by a berm of sufficient width.

Ditch.—In an important work the ditch should be wide (about 40 feet) and deep (24 feet at least). Ditches of these dimensions will give an excess of earth which can easily be got rid of.

The *escarp*, which so far has gradually been lowered more and more, should be done away with altogether, and replaced by constructions which are not easily damaged by artillery fire, such as palisading or wire entanglements; it is, in consequence, left at the natural slope. This suppression of the escarp is due to the experiments on the Malmaison Fort, where it was shown that a melinite projectile happening to fall into the earth at some distance in rear of the escarp threw it down for a length of 50 to 60 feet.

The *counterscarp*, better hidden from the effects of artillery, has become of great importance, and should be a substantial design of concrete arches, though still without revetment. Where necessary, it can be surmounted by a palisading. This turtle-back of concrete will usually be hollowed out so as to form a *counterscarp gallery*. The *obstacle* will thus be almost the counterscarp only, and it will be easier to cross the ditch than when the escarp was revetted, for the palisading which replaces the latter could be broken in many points by artillery from a distance. It is, therefore, necessary to carefully flank the ditches, which entails the constructing of very costly works.

If the fort should be detached, the profile of the ditch of the gorge will be reversed, that is to say, the escarp will form the obstacle and be revetted, because the counterscarp, exposed to the enemy's projectiles, can no longer be so, but will be formed at a slope as steep as possible, surmounted when necessary by a palisading 8 feet high, covered by the covered way. To prevent the attacker when he once goes into the ditch of the gorge from at once penetrating into those of the flanks it is necessary to separate the one from the other by means of a sudden drop, of a ha-ha, or of a palisading which would detain the attacker under the fire of one or more of the flanking arrangements.

Glacis and Accessory Defences.—The *glacis* is continued below the natural ground and is about 50 yards long, of which about 30 yards is covered with wire entanglement, protected by a vertical face of earth. When the place is put into a state of defence there will be added, especially on the capital lines, land-mines and fougasses, and, in addition, if one can in peace-time arrange a system of counter-mines, a start will be made from the counterscarp gallery so as to form mine-chambers.

Flanking the Ditches.—We have seen that high-explosive shells easily wreck caponiers so that they can no longer be used for flanking purposes. It is recognised that counterscarp chambers or reverse galleries will best replace them. These arrangements, based on the same ideas as the caponiers, will be made in cement concrete, giving two guns for each ditch (*Fig. 3*). Where it is impossible to avoid enfilade fire along the ditch, General Brialmont recommends replacing the face wall of concrete by an iron construction. In order to take in reverse the palisading and the slope of the escarp, it will be necessary to come very near the continuation of the counterscarp. The greatest height possible will be given to these flanking chambers, so as to diminish the possibility of escalading, which the *débris* brought down by the fire of the enemy would offer. This then is a reason for giving a great depth to the ditch (23 to 26 feet). Access to these chambers will be, as far as possible, by galleries under the ditch, which should be directed so as not to come under the drop ditch (see *Fig. 3*).

It is urged against the employment of these arrangements that counterscarp chambers or galleries entail a means of communication, damp, dark, and difficult

to construct, and that, in addition, they are more easily destroyed by mines than any flanking coming from the escarp or parapet. Against this it may be said on the contrary that they lend themselves well to the forming of counter-mines.

But most of these difficulties can be much smoothed down by making use (since the improvements in manufacture allow it) of cast-iron plates for their construction, $6\frac{1}{2}$ feet high and 3 feet wide, covered with cement concrete at the necessary points.

Besides, there does not exist at present, as far as is known, any better flanking arrangement. The flanking of the gorge of detached works can be carried out more easily either by a concrete cement caponier or by flank casemates with the bastion trace. In certain cases here also it will be necessary to employ counterscarp galleries.

Triangular Profile.—The difficulty of flanking the ditches has suggested the idea of the *triangular profile*, which is so arranged that it is possible to sweep the whole surface to the bottom of the ditch by fire from the crest. To do this, the superior slope at the ordinary $\frac{1}{4}$ to $\frac{1}{3}$ is prolonged until it is 10 or 13 feet below the ground line, ending either at the bottom of a ditch 13 to 20 feet wide (Figs. 1 and 2, *Plate XVI.*), or at the bottom of a counterscarp; which latter is at the natural slope (Fig. 3), or is made up of a wall of ordinary stone or cement concrete (Fig. 1), surmounted by a small slope at $\frac{1}{4}$ or $\frac{1}{3}$, ending in the crest of a glacis with a relief of not much more than 3 feet.

At from 13 to 20 feet from the foot of the counterscarp (Fig. 1), or at 70 feet (Fig. 2), a palisading 7 to 13 feet high is arranged on the superior slope, fixed for preference in a continuous concrete mass, with its top defiladed as much as possible by the crest of the glacis. In addition, so as to increase the difficulties of advancing, there is placed at the bottom of the counterscarp a wire entanglement 50 to 100 feet deep, swept from the crest in rear equally with the palisading. In the bottom of the ditch one can replace the wire entanglement by horizontal lines of artificial brambles (barbed wire—T.R.M.) arranged in two or three parallel rows and bound to iron vertical uprights. Notwithstanding its attractive (*séduisante*) appearance, this profile only takes one's fancy under particular conditions, as, for instance, for field works, and should, on principle, be rejected for the parapets of permanent works for the following reasons:—

1. It requires a deep space of ground, and reduces the thickness of the parapet at the crest.
2. It is difficult to adopt on ground whose slope is more than $\frac{1}{4}$.
3. The counterscarp, low as it is, is easily passed even when revetted; and when, after a prolonged bombardment, the palisading and the wire entanglement will have been broken and thrown on one side, so to allow a passage through it, it is to be feared that the long superior slope will be covered with craters intercepting the view, and allowing the attackers to get cover. If the defender finds out the latter, he will succeed in dislodging them, but it appears clearly pointed out then to the attacker to attempt a night-attack, which the triangular profile appears to specially favour.

Iron Palisading.—The palisading which we mentioned above is solidly constructed (Fig. 4) with spears and struts, and fixed in a small cement wall.

Wire Entanglements.—These entanglements have acquired considerable importance of late, and should be constructed solidly. In the place of wooden pickets, iron pickets fixed in a masonry footing are employed. The pickets, pointed at the upper end, are of different heights so that the attacker cannot cross the entanglement by throwing on it timber or planks.

In certain cases the ordinary wire is replaced by steel artificial brambles (barbed wire) which, when broken by a shell, twist themselves up, on account of their elasticity, and so give full value as an obstacle.

It has been proposed, also, to make use of wire entanglements prepared beforehand, and capable of being rapidly placed in position, so that it should be

easy to establish a great depth of them at the last moment around the points to be defended.

Armament.—From motives of economy, one is induced to arm the *front faces* with quick-firing guns, revolving cannon, or mitrailleuses, which would be mounted on very light carriages, and be under shelter at ordinary times, but be capable of being brought rapidly into action on the infantry parapet in case of need. But a better solution is to place at each of the salients of the front a disappearing cupola for two quick-firing guns whose grazing and quick fire will produce more effect on the surrounding country at the same time that their field fire is wider. Each *flank* should be armed on the preceding principles (*vide supra*, "Armament"), and should have from two to four pieces, depending on its importance, with a disappearing tourelle for two light or quick-firing guns at the end next to the gorge. The *main armament* (*Armement de Sécurité*) should be placed in the fort, or under its immediate protection. If it is in the fort, it must be removed before the commencement of the fighting, as soon as the arrangements for defence have been settled on. However, it is just possible that these pieces may have to commence fighting, or enter into action before they can be withdrawn from the fort in case of a sudden assault; and it is, therefore, advisable to tell off their positions, which may be on the *terre-plein* if the fort is deep enough, or may be on the infantry banquette.

Flanking the Intervals.—This will be arranged by the tourelles or light pieces on the flanks of the fort, or even by concrete casemates of the Haxo type with orillons on the flanks.

(To be continued.)

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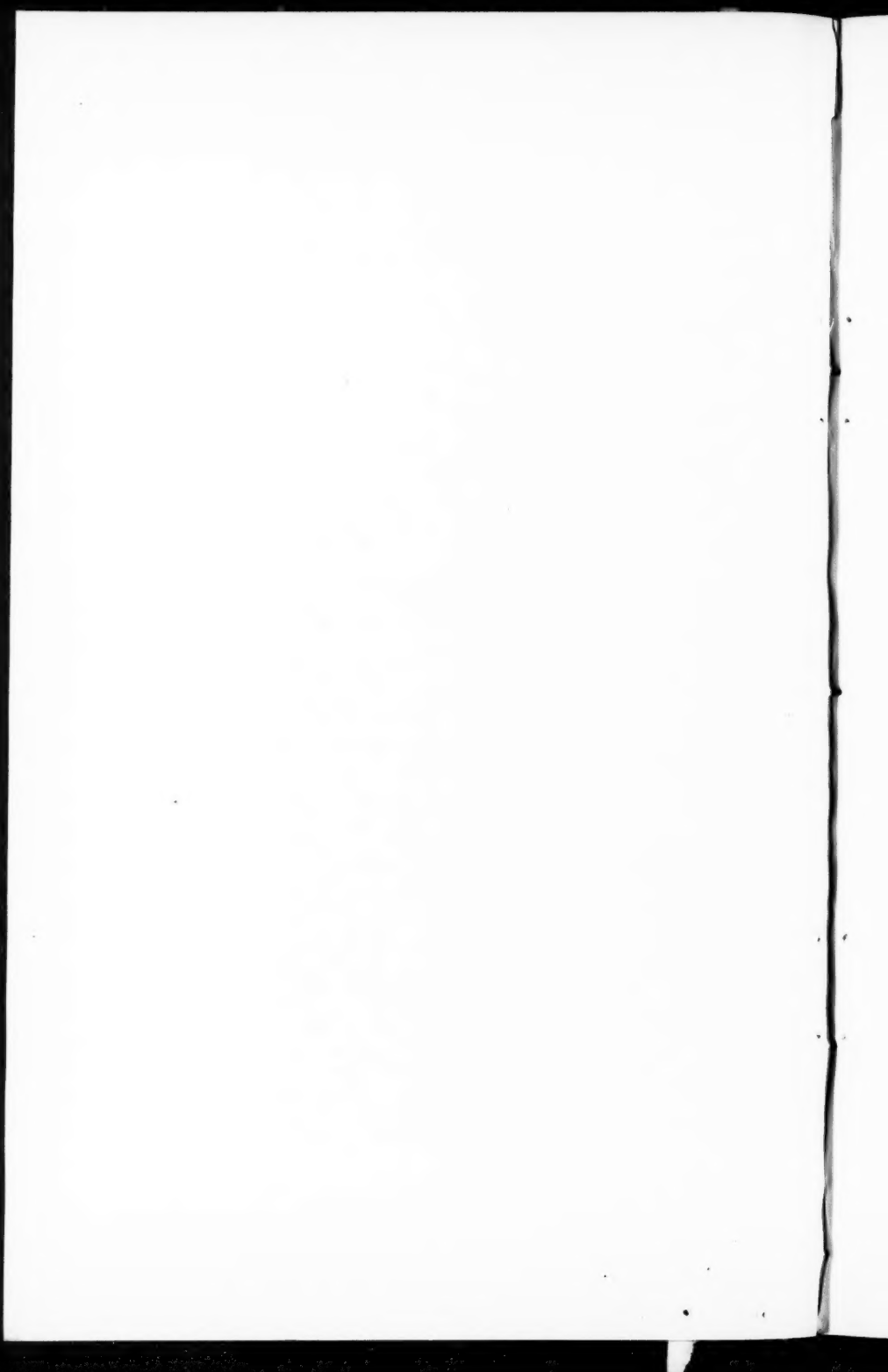
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THE NAVY ESTIMATES, 1895-96.

Explanatory Statement of the First Lord of the Admiralty.

The Navy Estimates for 1895-96 amount to a net total of £18,701,000, or £1,334,900 more than the sum voted for 1894-95, and £4,460,900 more than the sum voted for 1893-94.

In my statement of last year I explained the reasons for the large increase of the Estimates for 1894-95. The continued increase this year is due to the same causes. In regard to new construction and armaments, the steady progress of the ships laid down in 1894-95, and the proposed commencement of the new ships forming part of the five years' programme undertaken last year, and which has in no respect been enlarged, require increased expenditure. When it is considered that in addition to these requirements it is necessary to find more men to man the larger and more numerous ships of the present fleet, to make larger docks for their accommodation and safer harbours for their protection, and also to improve and develop our Naval Reserves, it is not surprising that the demands on the Estimates are serious and large.

During the early part of this year it was found desirable for the proper and economical administration of the dockyards to provide, at a much earlier date than was originally anticipated, certain stores required for the ships under construction. Orders have been given for the manufacture in this financial year of additional supplies of armour, steel plates, angles, and other shipbuilding stores.

The increased number and larger size of ships in commission on the China and Mediterranean Stations and elsewhere have further occasioned the shipment to depôts abroad of large quantities of coal and reserve warlike stores. It was desirable to replenish without loss of time the depôts at home from which these stores had been shipped.

The Admiralty have also been alive to the importance of taking immediate steps to convert the ordinary 6-inch and smaller B.L. guns into quick-firing guns.

The favourable state of the market rendered the early placing of these orders advantageous from an economical point of view, and the Treasury having concurred in the presentation of a Supplementary Estimate to cover expenditure for these services in excess of the provision made in the Estimates of last year, details will shortly be laid on the table of the House of Commons.

NUMBERS.

The number of officers, seamen, boys, Coastguard, and Royal Marines voted for 1894-95 was 83,400. It is satisfactory to find that this total number has been almost attained at the present time, the actual number borne on the 1st of February being 82,923. During the course of the year 6,223 men have been added, comprising among others—1,589 seamen class, 162 artisans, 281 engine-room artificers, 2,519 stokers, 1,169 boys, and 453 marines.

Early in the year it appeared likely that the proposal to recruit 800 men from the mercantile marine and other sources would not be successful, and steps were taken to commission a cruising training-ship ("Northampton") for the purpose of receiving boys on board at an age later than that required for entry into the permanent boys' training ships. These boys will pass into the service after six months or more of training. In the course of this service the "Northampton" cruised to different parts of the coasts of Great Britain and Ireland.

This experiment succeeded in obtaining a sufficient number of boys to complete the complement allotted to the ship, and as far as can be judged was most satis-

factory; it cannot, however, be deemed complete until after the boys, who have now commenced joining the fleet, have been tried afloat. It is proposed to continue the work of the "Northampton" this year, and not to revert to the proposal of recruiting men from the mercantile marine.

The question of the number of officers available for service both in peace and in war, and the flow of promotion in the executive lists of the Navy, has called for the serious attention of the Board. The present system of promotion and retirement was established by Order in Council in 1870, but from time to time modifications have been made, and it had become indispensable to make a searching inquiry into the operation of the scheme, having regard to the present requirements of the Navy. For this purpose a committee was appointed under the presidency of Admiral Sir A. Hoskins, and their report is now under the consideration of the Board and of the Treasury.

The number of cadets in the "Britannia" has been raised from 240 to 270 during the year. This number will be further supplemented by an increase in the numbers of nominations given to the "Conway" and "Worcester." It is anticipated that the necessarily slow and gradual increase in the number of young officers trained in the "Britannia" will, in the course of time, place the active list of the Navy on a satisfactory footing; but, as this end cannot be reached for several years, the attention of the Admiralty is seriously engaged in the consideration of the best means of supplying the immediate requirements of the Service.

The numbers proposed for this year in Vote A are 88,850, an increase of 5,450 over last year.

The chief gunners, boatswains, and carpenters will be increased by fourteen, and warrant officers by 100.

Forty assistant engineers for temporary service will be entered to supplement the entries on the permanent list.

It is proposed to add 174 chief and engine-room artificers to the present numbers, raising the total for the year to 2,134, and also to increase the number of stokers by 1,750, bringing the total number of this rating to 15,232.

There will be a net increase among the seamen-class men of 1,500, including about 500 expected to be obtained from the "Northampton." The boys (service and under training) will be increased by 1,100.

NEW CONSTRUCTION.

Shipbuilding under the Naval Defence Act in 1894-95.

The five second class cruisers and four torpedo gun-boats which I referred to as still incomplete at the close of the last financial year will have been all completed by the end of the present financial year, thus terminating the programme of the Naval Defence Act of 1889. The limit of five years originally fixed for the completion of the ships has been exceeded in regard to these vessels, the authority of an Act of Parliament having been obtained for the purpose.

Other Shipbuilding in 1894-95.

The programme of new construction, of which I gave a sketch in my statement of last year, has been carried out in most of its main features, although under circumstances of considerable difficulty, owing to labour disputes in the private trade, and to very severe weather at the commencement of 1895.

Battle-ships.

The construction of the "Majestic" and "Magnificent" has been advanced more rapidly than that of any preceding battle-ships. Each of these vessels was floated out of dock within twelve months of the date of laying the keel. At the time they left the dock nearly the whole of the hull armour was in place, and the work of fitting had been taken in hand.

These results have been achieved by great exertion, skill, and perserverance on the part of the superintendents, officers, and men of Portsmouth and Chatham Dockyards, and without interference with the ordinary working of the dockyards.

The "Renown," building at Pembroke, will be launched early in 1895-96. Before this vessel is launched she will be practically complete as regards the hull-structure and armour protection, while the work of internal fitting will also be in a forward state.

Of the seven first class battle-ships included in the new programme commenced in 1894-95, five are building in the dockyards and two by contract.

The vessels on which most progress has been made are the "Prince George" at Portsmouth and the "Victorious" at Chatham, both of which, it is anticipated, will be launched during next summer.

The "Illustrious" at Chatham and the "Cæsar" at Portsmouth were only intended to be in a very early stage of construction at the close of the financial year 1894-95. A considerable amount of preparatory work has been done for them, and good progress is contemplated in the coming financial year.

The "Hannibal," building at Pembroke, has been advanced to the extent contemplated in the Estimates.

The "Mars," building by Messrs. Laird, at Birkenhead, has also been pushed forward very rapidly by the contractors. The "Jupiter," building by Messrs. Thomson, on the Clyde, has been advanced as fast as circumstances permitted; but progress has been greatly hindered by the Scotch coal strike, which also affected all contracts for new ships and machinery placed in the Clyde district. Since the strike ended the progress of work on the "Jupiter" has been continuous.

Cruisers.

The first class cruisers "Powerful" and "Terrible," building by contract at Barrow and on the Clyde, have been very rapidly advanced during 1894-95, and it is anticipated that they will be launched during next summer.

The building of the three second class cruisers of the "Talbot" class in the dockyards has progressed satisfactorily during the year, and it is proposed to complete them early in the financial year 1896-97.

Six other vessels of the class included in the new programme are building by contract, four of them on the Clyde and two at Barrow. Progress on the former has been retarded by the recent coal strike, but it is now anticipated that no further delays will occur.

Four sloops are in course of construction in the dockyards, and it is proposed to complete them in the autumn of this year.

Torpedo-boat Destroyers.

In my statement of last year it was explained that forty-two vessels of this class had been ordered by contract, and that it had been made a condition in these contracts that the vessels should be completed in the financial year 1894-95.

The leading firms of shipbuilders and engineers who undertook the construction of these vessels have, owing to various circumstances, been unable to fulfil this condition. Some have been prejudicially affected by labour difficulties; and in all cases the novelty of the designs and the very high speed demanded have involved the expenditure of considerably greater time in construction and trials than had been anticipated. In the case of the vessels which have completed their trials the contract speeds have been obtained, and in some cases materially exceeded. Exhaustive experimental trials made at sea with some of the vessels first delivered have shown that the intentions of the designs will be realised in the class, and that they will be admirably adapted to the special service for which they are required.

It is now anticipated that at the close of the year 1894-95 one-third of the total number of vessels will have completed their trials and either have been delivered or be practically ready for service, but the severe weather in January and February makes an exact statement impossible.

In the course of the first two months of the new financial year a considerable proportion of the remaining vessels of the class will be completed, and the others will be approaching completion.

About £1,200,000 was provided for these vessels in the Estimates for 1894-95; and it is now anticipated that nearly £940,000 will be earned, a result which indicates sufficiently the advanced condition of the vessels still unfinished.

NEW PROGRAMME.

SECOND YEAR, 1895-96.

In the coming financial year it is proposed to commence four first class cruisers, four second class cruisers, two third class cruisers, and twenty torpedo-boat destroyers.

First Class Cruisers.

Three of the first class cruisers and all the torpedo-boat destroyers are to be built by contract. The remainder of the vessels will be laid down in the dockyards.

The complete designs for the first class cruisers, which will be improved "Blenheims," are not yet finally settled, and the details cannot, therefore, be furnished at present.

Second Class Cruisers.

The second class cruisers will have the following principal dimensions:—Length, 320 feet; breadth, 57 feet; displacement, about 5,750 tons.

The armament will be very nearly the same as that of the "Talbot" class.

The protective arrangements are also similar, although in some features the protection will be increased in the new vessels.

It is proposed that they shall be fitted with water-tube boilers giving 10,000-I.H.P. with natural draught, the corresponding speed being $18\frac{1}{2}$ to 19 knots.

Third Class Cruisers.

The third class cruisers may be described as improved "Barhams" with water-tube boilers. Their principal dimensions will be:—Length, 300 feet; breadth, 36 feet 6 inches; displacement, about 2,100 tons.

They will resemble the "Barhams" in the arrangements of their protective deck, but will have greater freeboard and much larger coal capacity.

Their armament will consist of eight 4-inch quick-firing guns, eight 3-pounders, and smaller guns. They will also have a torpedo armament similar to that of the "Barham."

The vessels of the "Barham" class are fitted with groups of locomotive boilers, which have not proved so satisfactory as was anticipated. The new vessels will be fitted with water-tube boilers of approved types, such as have been already used successfully in torpedo gun-boats and in torpedo-boat destroyers.

The maximum horse-power will be 7,000, the corresponding speed being about 20 knots.

Torpedo-Boat Destroyers.

In the case of the torpedo-boat destroyers to be laid down during the year, a still higher speed will be demanded than has been obtained in any of the vessels yet built. The matter is still under consideration. Up to the present time no design has been finally approved.

Summary of New Construction.

From the preceding statement it will be seen that in the financial year 1895-96 the following vessels will be under construction:—

In the dockyards.—Eight first class battle-ships, one first class cruiser, seven second class cruisers, two third class cruisers, four sloops.

In private yards.—Two first class battle-ships, five first class cruisers, six second class cruisers, forty-five to fifty torpedo-boat destroyers (the number being dependent upon the completion of trials).

Re-construction and Repairs.

By the end of the present financial year the following ships will have been repaired and refitted:—"Northumberland," "Rodney," "Impérieuse," "Dreadnought," "Immortalité," "Narcissus," "Blanche," "Sharpshooter."

It was contemplated that the "Monarch" would also be completed in the present financial year, but her final completion has been allowed to stand over till a somewhat later date. The "Monarch," "Sultan," "Phaeton," "Comus," and "Cordelia" will be completed during 1895.

Dockyard Administration.

The working hours in the dockyards have been reduced during the past year to an average of forty-eight a week, with a loss of certain privileges, but without a reduction of wages. The new system has not been yet sufficiently tried to enable an opinion to be given whether the output of work has been lessened or not. The first experience of the change has been decidedly favourable, and it is hoped that the reduction in the hours will to a great extent be compensated by the increased efficiency of the labour.

Boilers and Machinery.

During the year 1894-95 the last of the ships ordered under the Naval Defence Act—viz., five second class cruisers and four torpedo gun-boats—have successfully passed through the official steam trials.

The battle-ship "Monarch" (which has been supplied with new engines and boilers), six torpedo-boat destroyers, and several smaller vessels had also satisfactorily completed their trials by January, 1895.

The fitting of new boilers of the Belleville type in the torpedo gun-boat "Sharpshooter," in lieu of her original boilers of locomotive type, has been completed, and they have been tested on board during prolonged trials, with good results. The ship has been attached to the Channel Squadron to obtain further experience of the working of this type of boiler under sea-going conditions.

The "Speedy," a sister vessel, fitted with Thornycroft boilers capable of being forced under air pressure, has also been employed for a similar purpose. So far, the performances of the boilers of these two ships have been entirely satisfactory, and justify their further use in other ships.

The "Spanker," a vessel of the same class, is also being fitted with water-tube boilers of the Du Temple type, and it is expected that she will be completed before the end of this financial year. It is proposed to substitute for the locomotive boilers of two other vessels of this class a suitable type of water-tube boilers.

The six torpedo-boat destroyers referred to above are fitted with water-tube boilers. These have proved to be quite satisfactory in their working under extreme tests, and the performance of the machinery in all cases exceeded that which the makers guaranteed.

The Admiralty have desired to encourage the production of water-tube boilers of home design, but the novelty of this class of work to most engineers of this country has somewhat delayed the completion of many of the torpedo-boat destroyers during the year. The delay, however, has been attended with the advantage of obtaining much experience. It is proposed to adopt boilers of the water-tube type in the new ships to be laid down in 1895-96.

Armour Plate Experiments and Manufacture.

During the year various experimental armour plates have been submitted by manufacturers for purposes of test.

None of these, however, have shown qualities equal to those possessed by the Harveyed steel armour mentioned in my statement of last year. Consequently, armour of that description has been maintained in use, and the demands made upon the manufacturers during the past year have been very considerable.

The manufacturing firms have shown, as on previous occasions, their readiness to do their utmost to meet the requirements of the Admiralty. It is anticipated that there will be no difficulty in carrying out the orders placed under the new programme, the area of supply for armour having been somewhat enlarged.

Naval Ordnance.

The progress of gun manufacture during the year has been satisfactory.

The 12-inch wire guns have been tried, with excellent results. Twenty-six of these guns are now either completed or in progress, and it is proposed to commence nineteen more in 1895-96. That number will complete the outfits and reserves of the nine battle-ships of the "Majestic" class.

The guns of the "Renown," "Powerful," and "Terrible" are in progress, and will be ready in good time.

The great importance of the quick-firing type of guns has been fully recognised, and the whole of the 6-inch and smaller guns now under construction are on that system.

With the exception of one second class cruiser on a foreign station, all the ships built under the Naval Defence Act are now armed with these guns.

In October, 1893, experiments were commenced with the view of converting the 6-inch, 5-inch, and 4-inch breech-loading guns into quick-firers. These experiments having been carried to a successful issue, the conversion of a large number of guns has been undertaken. These guns will take the place of the ordinary B.L. guns in the battle-ships and cruisers not already armed with quick-firers.

Notwithstanding the explosion at Waltham Abbey, the production of cordite for the Navy during 1894-95 will approach 450 tons. Steps have been taken to place orders with the private trade, and thus increase the area of supply.

Cordite has been adopted for the new 12-inch and 9·2-inch guns, as well as for the quick-firing guns, and the reports of its behaviour are very satisfactory.

The Lee-Metford magazine rifle has been supplied to the Royal Marine divisions, and its issue to the Service afloat will be proceeded with during 1895-96.

The first hydraulic mounting for the new battle-ships has been practically tested, and the mountings for the "Majestic" and "Magnificent" will be completed in 1895-96.

The electric motors for working the 10-inch guns on board the "Barfleur" have acted well and give good promise for the future development of that system.

NEW WORKS.

In my statement last year I explained the reasons why extensive works connected with docks, harbours, and barracks were required. In carefully going over the proposals which were then sanctioned, some new works, and the extension of others already authorised, have been found to be necessary.

At Portland it is considered necessary to protect the eastern side of the harbour by a permanent breakwater, on the line of the present dolphins, so as to give more complete defence than was provided for by the dolphins, and to afford absolute protection against torpedo-boat attack. These dolphins are being completed as originally designed, and will form part of the permanent breakwater.

To obtain similar protection at Gibraltar, it is proposed still further to prolong the mole by an additional 3,200 feet, in the form of a detached mole, and to close the northern entrance of the harbour so formed either by dolphins and booms or by a coaling pier for merchant ships, if such should be constructed by the colony.

As the Downs cannot now be used in time of war as an anchorage for the fleet, a protected harbour at Dover would be of great service to ships of the Royal Navy; it would also be invaluable as a harbour of refuge for merchant vessels. It is proposed to complete the harbour on the lines of the scheme recommended by the Royal Commission of 1844.

At Hong Kong the present dockyard is not sufficient for the increasing demands of the squadron on that distant but important station.

The proposal to erect naval barracks at Portsmouth is in continuation of the policy carried out at Keyham and Whale Island and now being acted upon at Chatham. In addition to the better sanitary arrangements, general comfort, and discipline of the men which barracks afford, it is necessary to remove the existing

depôt hulks from the basins and elsewhere where space for berthing sea-going vessels is much required.

It is proposed to meet the outlay for these and certain other permanent works already commenced by a loan.

Annual Bills will be presented to Parliament to provide the money required for the works to be carried out during the year, and in this way the control of Parliament will be effectively maintained over the expenditure.

A Bill, with a schedule of the proposed works, will be presented directly the first Navy Vote has received the sanction of the House of Commons.

It will include provision for work in 1895-96 on all the larger works sanctioned last Session, with the addition of the further works at Portland and Gibraltar.

The Works Vote in the Navy Estimates for the ensuing year has been framed in view of the adoption of this proposal, and does not include money which will be provided by loan.

The vote is £103,000 less than last year, but a very large additional expenditure will be entailed for many years to come on account of the works proposed to be carried out by loan. It must be observed that for many years this vote has been kept extremely low, and if the safety and efficiency of the fleet are to be maintained these costly works cannot be postponed.

Works in Progress.

The new docks at Portsmouth are being advanced and are expected to be completed in the course of next year.

At Gibraltar, the extension of the Admiralty mole by 750 feet is being made under contract. The further extension of the mole by 1,600 feet, and the construction of the dock are being commenced by local labour under the Admiralty officers. Under an arrangement with the Treasury, a substantial sum was appropriated for the commencement of the further extension of the mole and of the dock during the current financial year. The necessary plant and material have been ordered, and are being shipped to Gibraltar, and arrangements have been made to proceed with the works.

At Portland Harbour there has been some unavoidable delay, due to bad weather, in completing the coaling station and the temporary protection of the eastern side of the harbour; but both these services will be completed during the year.

As regards Keyham Dockyard extensions, minor contracts have been entered into for certain portions of the work, and a contract will shortly be made for the remainder.

Considerable progress has been made in dredging at Portsmouth, Devonport, and Chatham, and the work is being continued.

Designs have been prepared for the new naval barracks at Chatham, and, as soon as the necessary arrangements have been completed for the additional land required, the work will be commenced. It is further proposed to extend the hospital at Chatham, to meet the requirements of the largely-increased number of seamen maintained in reserve at the port.

A contract has been made for the extension of the barracks at the Walmer Marine Dépôt, and the work of enlarging the Engineer Students' College at Keyham will shortly be put in hand.

At Gibraltar and Malta the new works for the storage of ammunition are being carried out by the War Department. The Estimates have been revised to include an additional magazine at Gibraltar and certain additional works at Malta.

New Works in Estimates.

The principal new works to be commenced in the Estimates of 1895-96 are:—

Additional jetties at Portsmouth and Devonport. An extension of the coal store at Malta, to provide for the reserve coal for the Mediterranean Fleet. A new electric shop at Portsmouth, and the widening of the caisson communication between the repairing and rigging basins.

A torpedo range is proposed at Portland, to give the necessary facilities for running and adjusting new torpedoes.

At Malta it has been found necessary to acquire certain lands in the vicinity of the new magazines, and the purchase price has been arrived at by agreement and by arbitration.

The rifle ranges, for which certain provision is made, include Sheerness, Devonport, and Walmer, and additions and alterations will be carried out at Malta and other foreign stations to adapt the existing ranges to the magazine rifle.

The defective water supply at Port Royal, Jamaica, has been much complained of by successive commanders-in-chief, and provision will be made this year to meet this want of our fleet in the West Indies.

MOBILIZATION.

The united crews of ships commissioned for the partial mobilization of 1894 amounted to 9,951, as compared with 9,425 in 1893.

The arrangements for definitely appropriating petty officers and men of all ratings to the three home ports have now been completed, and the result of the general order that men were to elect the port division to which they wished to belong will form a basis on which the future appropriation of new entries to the ports will be regulated. This will result eventually in each port having its fair proportion of the various ranks and ratings, the want of which has been much felt.

In order to prevent the inconvenience caused by the necessity of sending men round to the other ports to qualify as torpedo men, arrangements are now being made to carry out this instruction at Chatham-Sheerness.

For similar reasons arrangements have also been made for training the engine-room artificers in torpedo work at Devonport, with a view to gradually making each port self-supporting.

ROYAL MARINES.

During the past financial year 1,870 recruits have been raised for this corps, bringing the number to within fifty of the increased establishment for which provision was voted.

Notwithstanding these large entries, the class of recruits has been quite up to the average; the height qualifying for admission has been maintained at an average of 5 feet 6 inches, the standard for the past four months for young men under twenty being fixed at 5 feet 7 inches, with the addition of $\frac{1}{2}$ inch for recruits over that age. The recruits for the Royal Marine Artillery are well up to the average, present entries being men of 5 feet 9 inches.

The whole of the corps on shore have been armed with the Lee-Metford rifle; the issue of the new arm to the men afloat and on distant stations will be gradually effected concurrently with the issues made to the seamen. Ranges suitable for the new arm are as yet available only at Eastney and Brown-down, thus necessitating the moving of squads by rail from the other divisions in order to carry out their practice at these places. It is hoped, however, that the Gravesend range will be made suitable for the Chatham marines by the early summer.

The new swimming bath at Walmer is proving to be of considerable benefit. Formerly it was not possible to teach swimming during the winter and spring months, and the majority of young soldiers completing their drills during that period were embarked without the opportunity of acquiring this art. Since July last, however, swimming has been taught daily, and the result is that very few of the Walmer men leave for service afloat who are unable to swim.

It has been found practicable to dispense with the further training of marines as naval signallers, as there are now a sufficient number of trained seamen signallers, but marines already qualified will continue to be employed.

The services of a detachment of seventy-five officers, non-commissioned officers, and men, Royal Marine Artillery, have been placed at the disposal of the Canadian Government for a period of five years. These men will be employed in conjunction with the Canadian forces at Esquimalt. The cost of their maintenance will be borne by the Dominion Government.

It is proposed to make a change in the recruiting service by gradually substituting retired officers on consolidated pay for officers on the active list. The latter will be of much use in doing duty with the corps, as the establishment of officers has been only slightly increased to meet the addition made to the men.

With the same object a number of officers on detached and special work have been seconded and their places filled by additional officers, who will serve at the depôts and with their men.

ROYAL NAVAL RESERVE.

The number of officers who have made themselves efficient by varying periods of service in the Fleet is 283, against 248 at the end of last year.

The lists of executive officers are now full, and 104 eligible candidates for entry had to be refused in September last. The Registrar-General has since received applications from 102 officers of the Mercantile Marine for entry into the Royal Naval Reserve. As regards engineer officers, the numbers enrolled are close upon those provided for in the Estimates of last year. The further increase of these officers, as well as a modification in the terms of their engagement, is now under consideration.

Arrangements have been made to enable officers to obtain a second year's training afloat. Hitherto it has been limited to one year on board a man-of-war.

The first and second class Reserve men are practically up to the full numbers voted. Firemen, attracted by the new regulations issued in 1893, have presented themselves in such numbers that the entry of men has had to be restricted to the very pick of the Mercantile Marine; provision will be made in the coming Estimates to add 400 to the list, which will bring the total number of firemen up to 2,000.

Up to 1889 difficulty was experienced in completing the force of the Royal Naval Reserve men to the number desired, but since then the applicants have been steadily increasing in number. This shows how popular the force has become among the seafaring population of the United Kingdom, and it may be confidently stated that under proper arrangements the force might be largely increased if the necessity should arise.

Provision was again made to embark 500 men for the naval manœuvres, and many more than that number volunteered for service. They were embarked in forty different ships, and, on the whole, good reports were received both as regards conduct and efficiency.

Provision has also again been made for embarking Royal Naval Reserve men for six months' training in the Fleet, and, although the conditions of such service have only just been issued, 236 men have volunteered for the training.

A new Royal Naval Reserve drill battery has recently been opened at Renmore, county Galway, and one will shortly be completed at Appledore. It is also under consideration to erect two or three more batteries round the coast of the United Kingdom.

The goodwill of the shipping companies and owners has contributed materially to the steady progress of the Royal Naval Reserve, both as regards officers and men.

Very encouraging reports are constantly received from the drill-ships and batteries as to the efficiency of Royal Naval Reserve officers and men, and there is much reason to be satisfied with the present condition of the force.

GENERAL.

Payment of Seamen's Allotments.

In consequence of representations of the inconvenience to the wives and relatives of seamen and marines in having to attend at the dockyards in order to receive the money allotted to them, a Committee, presided over by Lord Farrer, was appointed to visit the principal naval ports and to inquire into the matter.

The Committee recommended that payment of the allotments should be made by means of Post Office orders payable at the money order office nearest to the residences of the allottees. This recommendation has been adopted and carried out with the co-operation of the Post Office.

The system has worked well, and there is every reason to believe that it has been greatly appreciated by those drawing allotments.

Dockyard and Marine Division Schools.

A Committee, under the presidency of Sir Robert Hamilton, was appointed last year to inquire into the present condition of the schools in the dockyards and at the Royal Marine divisions.

The Committee arrived at the opinion that the schools established in the dockyards for the benefit of the apprentices are doing an important public service and should be maintained. Certain recommendations made by the Committee are being carried out.

With reference to the elementary schools at the Royal Marine divisions, the Committee, while recommending the maintenance of the schools, were of opinion that their conditions should be modified in view of recent legislation in regard to public elementary education. They accordingly suggested various changes for the purpose of bringing the Marine schools into closer touch with the Education Department. In consequence, arrangements have been made to bring these schools under the inspection of the Committee of Council for Education, and for the payment of a grant in aid of the schools on the same conditions as in public elementary schools.

This will effectually test the efficiency of the education given in these schools, and insure that the system is maintained in harmony with that of the rest of the country.

The financial result will be a transfer of part of the cost of these schools from Navy to Education votes.

Ships in Commission.

The number of ships in commission has been slightly increased. For better insuring the protection of British interests during the hostilities between China and Japan, the China Squadron has been temporarily increased by the first class cruiser "Edgar" and the second class cruiser "Spartan"—ordered from the Mediterranean—and by the first class gun-boats "Pigeon" and "Redbreast," from the East Indies.

The place of the "Pigeon" in the East Indies was taken temporarily by the "Bramble," from the Mediterranean, whilst the latter has been replaced by the "Hebe."

Of the flagships abroad, the first class ironclad "Centurion" has taken the place of the "Impérieuse" in China, the second class cruiser "Bonaventure" that of the "Boadicea" in the East Indies, and the first class cruiser "St. George" that of the "Raleigh" at the Cape.

New Training Ship.

A recent examination into recruiting for the Navy has pointed to the desirability of establishing another training-ship.

The experimental cruise of the "Northampton" round the coast of Ireland last year attracted a certain number of Irish boys into the Navy.

Following the step taken in 1892, in commissioning the "Caledonia" for the boys entered from Scotland and the North of England, it is contemplated to station a boys' training-ship at Queenstown.

This harbour presents decided advantages for the training of boys for the Navy. It is a naval station, and, besides having a mild climate, is admirably suited for instruction in boating and sailing.

The details of the proposal are not yet worked out, but I hope before long to be able to announce that the necessary arrangements have been made.

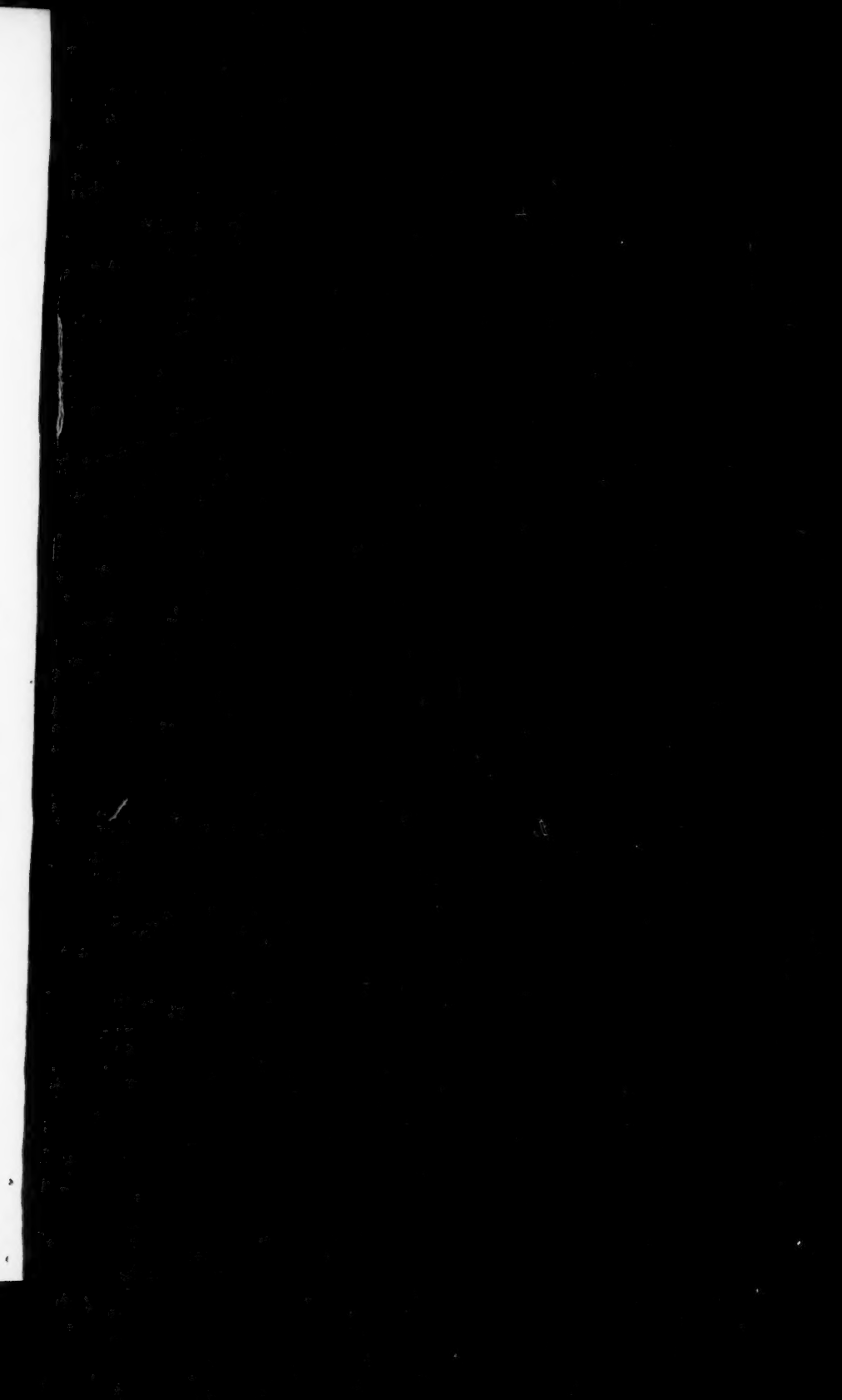
As I have explained elsewhere, the "Northampton" will include Irish ports in her coming cruise round the coasts of the United Kingdom, and thus bring other parts of Ireland into touch with the naval training service.

February 28, 1895.

SPENCER.

The following is an abstract of the Navy Estimates for 1895-96, and a comparison, showing increases and decreases, with the corresponding votes for last year:—

	Net Estimates.		Difference on Net Estimates.	
	1895-96.	1894-95.	Increase.	Decrease.
I.—Numbers.	Total numbers.	Total numbers.	Numbers.	Numbers.
Total number of Officers, Seamen, Boys, Coast Guard, and Royal Marines	88,850	83,400	5,450	—
II.—Effective Services.	£	£	£	£
Wages, etc., of Officers, Seamen, and Boys, Coast Guard, and Royal Marines	4,133,500	3,918,500	215,000	—
Victualling and Clothing for the Navy	1,367,100	1,402,100	—	35,000
Medical Establishments and Services	151,400	143,900	7,500	—
Martial Law	10,600	10,600	—	—
Educational Services	79,400	79,100	300	—
Scientific Services	61,400	61,600	—	200
Royal Naval Reserves	215,600	205,800	9,800	—
Shipbuilding, Repairs, Maintenance, etc. :—				
Section I.— <i>Personnel</i>	1,810,000	1,771,800	38,200	—
Section II.— <i>Material</i>	2,635,000	2,294,000	361,000	—
Section III.— <i>Contract Work</i>	3,416,000	2,920,200	495,800	—
Naval Armaments	1,693,200	1,383,200	310,000	—
Works, Buildings, and Repairs at Home and Abroad	547,000	650,000	—	103,000
Miscellaneous Effective Services	176,800	173,800	3,000	—
Admiralty Office	237,200	231,200	6,000	—
Total Effective Services	16,554,200	15,245,800	1,446,600	138,200
III.—Non-Effective Services.				
Half Pay, Reserved and Retired Pay	761,300	757,000	4,300	—
Naval and Marine Pensions, Gratuities, and Compassionate Allowances	1,007,900	990,400	17,500	—
Civil Pensions and Gratuities	317,300	312,600	4,700	—
Total Non-Effective Services	2,086,500	2,060,000	26,500	—
IV.—Extra Estimate for Services in connection with the Colonies.				
Additional Naval Force for Service in Australasian Waters—Annuity payable under	60,300	60,300	—	—
Grand total	18,701,000	17,366,100	1,473,100	138,200
Net increase	—	£1,334,900.	—	—





*The Right Hon.^{ble} George Rooke Vice Admiral
of England. &c. Admiral and Commander in Cheife of Her Majesties Fleet &c And one
of Her Majesties most Honourable Privie Council.*

206

In consequence of the absence
of the Editor, Captain Maude,
through illness, the Book Notices
have again had to be curtailed.